

# MEMORANDUM

## VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

### NORTHERN REGIONAL OFFICE

13901 Crown Court

Woodbridge, VA 22193

SUBJECT: Reissuance of VPDES Permit VA0090026

TO: Kim Young J Sewage Treatment Plant

FROM: Douglas Frasier

DATE: 9 June 2015

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This memorandum provides pertinent information concerning the reissuance of the VPDES Permit listed above. This permit is being processed as a minor, municipal permit. The discharge would result from the operation of a proposed 0.0009 MGD wastewater treatment plant. This permit action consists of updating the proposed effluent limits to reflect the current Virginia WQS (effective 6 January 2011), updating permit language as appropriate and identifying any applicable Total Maximum Daily Loads (TMDLs). The effluent limitations and special conditions contained within this permit will maintain the Water Quality Standards of 9VAC25-260 et seq.

The 2010 Fact Sheet for the aforementioned facility and associated attachments can be found in **Attachment 1**. The information contained within this memorandum replaces or enhances the information in the 2010 Fact Sheet.

It should be noted that the *General VPDES Permit for Domestic Sewage Discharges of Less Than or Equal to 1,000 Gallons Per Day*, 9VAC25-110 et seq. is currently in the process of reissuance, which is expected to be completed in August 2016. The Policy for the Potomac Embayments standards has been proposed to be included within this general permit specifically for single family dwellings subject to these limitations. It is anticipated that this owner and two other single family residences, currently holding individual permits for their domestic discharges, will convert to the General Permit once it is available.

#### 1. Processing Information.

Application Complete Date:	12 March 2015	
Permit Drafted By:	Douglas Frasier	Date Drafted: 9 June 2015
Draft Permit Reviewed By:	Anna Westernik	Date Reviewed: 12 June 2015
Draft Permit Reviewed By:	Alison Thompson	Date Reviewed: 17 June 2015
Public Comment Period Start Date:	10 July 2015	
Public Comment Period End Date:	10 August 2015	

#### 2. Sludge Use and Disposal.

This facility is not built. As required in the previous permit, a Sludge Management Plan is to be submitted 120 days prior to commencing operations for DEQ-NRO approval.

#### 3. Site Inspection.

No site inspection was conducted since this facility has not been built.

#### 4. Receiving Stream Water Quality and Water Quality Standards.

##### a) Ambient Water Quality Data

The proposed facility discharge will be to Thompson's Creek into an unnamed tributary to Belmont Bay. This tributary has not been monitored or assessed by DEQ. There are no monitoring stations on any of the downstream free-flowing portions of the unnamed tributaries to Belmont Bay; therefore, a downstream water quality summary is not provided.

It is noted that the closest downstream DEQ monitoring station (1aOCC002.47) is located in the tidal Belmont Bay, approximately 3.5 miles downstream of Outfall 001.

##### b) 303(d) Listed Stream Segments and Total Maximum Daily Loads (TMDLs)

INFORMATION OF DOWNSTREAM 303 (d) IMPAIRMENTS AND TMDLS					
Waterbody Name	Impaired Use	Cause	TMDL completed	WLA	Basis for WLA
<i>Impairment Information in the 2012 Integrated Report</i>					
Occoquan Bay*	Fish Consumption	PCBs	Potomac River Watershed PCB 31 October 2007	NA	NA
	Aquatic Life	Estuarine Bioassessment	--	--	--

\*Please note that in the Draft 2014 Integrated Assessment, Occoquan Bay is listed with a dissolved oxygen impairment for the aquatic life use. The dissolved oxygen impairment will be covered by the completed TMDL for the Chesapeake Bay watershed; however, the Bay TMDL and the WLAs contained within the TMDL are not addressed in this planning statement.

See **Attachment 2** for the full planning statement.

##### c) Receiving Stream Water Quality Criteria

Part IX of 9VAC25-260(360-550) designates classes and special standards applicable to defined Virginia river basins and sections. The receiving stream, an unnamed tributary of Thompson's Creek, is located within Section 7 of the Potomac River Basin and is designated as Class III water.

Class III waters must achieve a dissolved oxygen (D.O.) of 4.0 mg/L or greater, a daily average D.O. of 5.0 mg/L or greater, a temperature that does not exceed 32° C at all times and must maintain a pH of 6.0 – 9.0 standard units (S.U.) at all times.

**Attachment 3** details other water quality criteria applicable to the receiving stream.

##### Ammonia:

The previously established ammonia criteria and subsequent limitations for the months of November through March will be carried forward with this reissuance; as this facility has not been built. However, it should be noted that the Environmental Protection Agency (EPA) finalized new, more stringent ammonia criteria in August 2013; possibly resulting in significant reductions in ammonia effluent limitations. It is staff's best professional judgement that incorporation of these criteria into the Virginia Water Quality Standards is forthcoming. This and many other facilities may be required to comply with these new criteria during their next respective permit terms.

##### Metals Criteria:

Metals criteria were determined using the default hardness of 50 mg/L CaCO<sub>3</sub> for streams east of the Blue Ridge. No metals are being incorporated into this reissuance.

The hardness-dependent metals criteria in **Attachment 3** are based on this default value.

Bacteria Criteria:

The Virginia Water Quality Standards at 9VAC25-260-170.A state that the following criteria shall apply to protect primary recreational uses in surface waters:

*E. coli* bacteria per 100 mL of water shall not exceed the following:

	Geometric Mean*
Freshwater <i>E. coli</i> (N/100 mL)	126

\*For a minimum of four weekly samples taken during any calendar month.

d) Receiving Stream Special Standards

The State Water Control Board's Water Quality Standards, River Basin Section Tables (9VAC25-260-360, 370 and 380) designates the river basins, sections, classes and special standards for surface waters of the Commonwealth of Virginia. The receiving stream, Thompson's Creek, UT, is located within Section 7 of the Potomac River Basin. This section has been designated with a special standard of "b".

Special Standard "b" (Policy for the Potomac Embayments) established effluent standards for all sewage plants discharging into Potomac River embayments and for expansions of existing plants discharging into non-tidal tributaries of these embayments. 9VAC25-415, Policy for the Potomac Embayments controls point source discharges of conventional pollutants into the Virginia embayment waters of the Potomac River and their tributaries from the fall line at Chain Bridge in Arlington County to the Route 301 Bridge in King George County.

This regulation sets effluent limitations for carbonaceous-biochemical oxygen demand-5 day (cBOD<sub>5</sub>), total suspended solids, phosphorus and ammonia (April – October) to protect the water quality of these high profile waterbodies.

**5. Effluent Screening, Wasteload Allocation, and Effluent Limit Development.**

Since this facility has not been built, there is no effluent data available.

9VAC25-31-220.D requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an instream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits. Ammonia and total residual chlorine (TRC) were evaluated during the previous permit reissuance since (1) the proposed discharge is treated domestic sewage and (2) may be disinfected utilizing chlorine. The permit limits ascertained in 2010 will remain the same (**Attachment 4**).

The VPDES Permit Regulation at 9VAC25-31-230.D. requires that monthly and weekly average limitations be imposed for municipal discharges and monthly average and daily maximum limitations be imposed for industrial discharges.

No changes to dissolved oxygen, carbonaceous-biochemical oxygen demand-5 day (cBOD<sub>5</sub>), total suspended solids (TSS), ammonia, pH, total residual chlorine, total phosphorus and *E. coli* limits are proposed.

pH, total residual chlorine and *E. coli* limitations are based upon the water quality criteria.

cBOD<sub>5</sub>, total suspended solids, total phosphorus and ammonia (April – October) are based on the PPRE. Please refer to Section 4.d. of the attached Fact Sheet.

**6. Antibalancing.**

All limits in this permit are at least as stringent as those previously established. Backsliding does not apply to this reissuance.

**7. Changes to Permit from the Previously Issued Permit.**

- The Weekly Average for cBOD<sub>5</sub> was rounded to 8 mg/L from the previous 7.5 mg/L; reflecting current agency guidance.
- The name of the facility was corrected with this reissuance.

**8. Public Notice Information.**

First Public Notice Date: TBD

Second Public Notice Date: TBD

Public Notice Information is required by 9VAC25-31-280 B. All pertinent information is on file and may be inspected, and copied by contacting the: DEQ Northern Regional Office; 13901 Crown Court, Woodbridge, VA 22193; Telephone No. (703) 583-3873; [Douglas.Frasier@deq.virginia.gov](mailto:Douglas.Frasier@deq.virginia.gov). See **Attachment 5** for a copy of the public notice document.

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer and of all persons represented by the commenter/requester, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit. Requests for public hearings shall state 1) the reason why a hearing is requested; 2) a brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit; and 3) specific references, where possible, to terms and conditions of the permit with suggested revisions. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given. The public may request an electronic copy of the draft permit and fact sheet or review the draft permit and application at the DEQ Northern Regional Office by appointment.

**9. Additional Comments.**

Previous Board Actions: None

Staff Comments: None

Public Comment: None

# List of Attachments

## Table of Contents

Young J. Kim Sewage Treatment Plant  
VA0090026  
2015 Reissuance

Attachment 1	2010 Fact Sheet and Associated Attachments
Attachment 2	Planning Statement
Attachment 3	Water Quality Criteria / Wasteload Allocation Analysis
Attachment 4	Ammonia and Total Residual Chlorine Limitation Derivations
Attachment 5	Public Notice

## ATTACHMENT 1

### 2010 Fact Sheet & Attachments

This document gives pertinent information concerning the reissuance of the VPDES Permit listed below. This permit is being processed as a Minor, Municipal permit. The discharge results from the operation of a 0.0009 MGD wastewater treatment plant. This permit action consists of updating the WQS and updating boilerplate. The effluent limitations and special conditions contained in this permit will maintain the Water Quality Standards of 9VAC25-260-00 *et seq.*

1. Facility Name and Mailing Address: Young J. Kim STP  
10527 Belmont Blvd.  
Lorton, VA 22079  
SIC Code : 4952 WWTP  
Facility Location: 10527 Belmont Blvd.  
Lorton, VA 22079  
County: Fairfax  
Facility Contact Name: Young J. Kim  
Telephone Number: 703-451-6321
2. Permit No.: VA0090026  
Expiration Date of previous permit: May 15, 2009  
Other VPDES Permits associated with this facility: NA  
Other Permits associated with this facility: NA  
E2/E3/E4 Status: NA
3. Owner Name: Overseas Pan-Korean Center  
Owner Contact/Title: Young J. Kim / Chairperson  
Telephone Number: 703-451-6321
4. Application Complete Date: September 9, 2009  
Permit Drafted By: Joan C. Crowther  
Date Drafted: 2/23/10  
Draft Permit Reviewed By: Alison Thompson  
Date Reviewed: 2/25/10  
Public Comment Period : Start Date: 3/26/10  
End Date: 4/26/10
5. Receiving Waters Information: See Attachment 1 for the Flow Frequency Determination  
Receiving Stream Name : Thompson's Creek, UT  
Drainage Area at Outfall: 0.09 sq.mi.  
River Mile: 0.13  
Stream Basin: Potomac River  
Subbasin: Potomac River  
Section: 7  
Stream Class: III  
Special Standards: b  
Waterbody ID: VAN- A25R  
7Q10 Low Flow: 0.0 MGD  
7Q10 High Flow: 0.0 MGD  
1Q10 Low Flow: 0.0 MGD  
1Q10 High Flow: 0.0 MGD  
Harmonic Mean Flow: 0.0 MGD  
30Q5 Flow: 0.0 MGD  
303(d) Listed: No  
30Q10 Flow: 0.0 MGD  
TMDL Approved: NA  
Date TMDL Approved: NA
6. Statutory or Regulatory Basis for Special Conditions and Effluent Limitations:
 

<u>✓</u> State Water Control Law <u>✓</u> Clean Water Act <u>✓</u> VPDES Permit Regulation <u>✓</u> EPA NPDES Regulation	<u>      </u> EPA Guidelines <u>✓</u> Water Quality Standards <u>✓</u> Policy for the Potomac River Embayments (9VAC25-415 <i>et seq.</i> )
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7. Licensed Operator Requirements: Class III
8. Reliability Class: Class II

## 9. Permit Characterization:

<input checked="" type="checkbox"/> Private	<input type="checkbox"/> Effluent Limited	<input type="checkbox"/> Possible Interstate Effect
<input type="checkbox"/> Federal	<input checked="" type="checkbox"/> Water Quality Limited	<input type="checkbox"/> Compliance Schedule Required
<input type="checkbox"/> State	<input type="checkbox"/> Toxics Monitoring Program Required	<input type="checkbox"/> Interim Limits in Permit
<input type="checkbox"/> POTW	<input type="checkbox"/> Pretreatment Program Required	<input type="checkbox"/> Interim Limits in Other Document
<input type="checkbox"/> TMDL		

## 10. Wastewater Sources and Treatment Description:

This wastewater treatment plant has not been built yet. The proposed plant will consist of either a septic tank with recirculating sand filter or an aerobic treatment followed by chlorination and dechlorination.

TABLE 1 – Outfall Description				
Outfall Number	Discharge Sources	Treatment	Design Flow	Outfall Latitude and Longitude
001	Domestic Wastewater	See Item 10 above.	0.0009 MGD	38° 40' 17" N 77° 12' 24" W
See Attachment 2 for (Fort Belvoir, DEQ #193B) topographic map.				

## 11. Sludge Treatment and Disposal Methods:

The proposed wastewater treatment plant will incorporate a 2000-gallon septic tank as a primary pretreatment component. The septic tank will be pumped periodically and any accumulated sewage sludge will be removed as a part of the operation and monitoring program. The sewage materials will be discharged into an approved central sewage treatment facility.

## 12. Discharges and Monitoring Stations in Vicinity of Discharge

TABLE 2	
DEQ Water Monitoring Station ID / VPDES Permit Number	Description of the DEQ Water Monitoring Station / VPDES Permit Facility
VA0090221	Meadowood Farm, LLP Wastewater Treatment Plant, Discharges into Belmont Bay, UT, (38° 39' 28"/ 77° 11' 42")
VA0029416	Harbor View STP, Discharges into Belmont Bay, UT, (38° 40' 8"/ 77° 13' 15.9")
VA0023299	Gunston Elementary School Wastewater Treatment Plant, Discharges into South Branch, (38° 41' 3"/ 77° 12' 46")
1aOCC002.47	Occoquan Bay, approximately 3.6 downstream from Outfall 001; This station is classified as tidal waters.

## 13. Material Storage:

No materials are currently stored on site.

## 14. Site Inspection: No site inspection was performed since the wastewater treatment plant has not been built.



**15. Receiving Stream Water Quality and Water Quality Standards:****a) Ambient Water Quality Data**

There is no monitoring data for the unnamed tributary to Belmont Bay. The nearest downstream DEQ water quality monitoring station with ambient data is Station 1aOCC002.47, located in the Occoquan Bay, approximately 3.6 miles downstream from Outfall 001 and is considered to be tidal. This monitoring station is located in assessment unit VAN-A25E\_OCC02A00, which extends 0.5 mile around the around station 1aOCC002.47. This segment is also part of the Chesapeake Bay Program's (CBP) Potomac Tidal Freshwater (POTTF) segment. Please see the Planning Statement for additional information (Attachment 3).

**b) Receiving Stream Water Quality Criteria**

Part IX of 9VAC25-260(360-550) designates classes and special standards applicable to defined Virginia river basins and sections. The receiving stream Thompson Creek, UT is located within Section 7 of the Potomac River Basin, and classified as a Class III water.

At all times, Class III waters must achieve a dissolved oxygen (D.O.) of 4.0 mg/L or greater, a daily average D.O. of 5.0 mg/L or greater, a temperature that does not exceed 32°C, and maintain a pH of 6.0-9.0 standard units (S.U.).

Attachment 4 details other water quality criteria applicable to the receiving stream separated by the following seasons: November – March and April – October. These seasons are based on the seasonality of the Policy of the Potomac River Embayments.

**Ammonia:**

This wastewater treatment plant has not be built and there is no stream ambient water quality data available. The temperature value of 25°C (summer); 15 °C (winter) and a pH value of 7.5 S.U. were used to calculate the ammonia water quality standards. These temperature and pH values were used in the previous permit reissuance and will be carried forward as part of this reissuance process.

**Metals Criteria:**

There is no hardness data for this facility. Staff guidance suggests using a default hardness value of 50 mg/l CaCO<sub>3</sub> for streams east of the Blue Ridge. The hardness-dependent metals criteria in Attachment 4 are based on this in-stream value.

**Bacteria Criteria:** The Virginia Water Quality Standards (9VAC25-260-170 B.)(effective February 1, 2010) states sewage discharges shall be disinfected to achieve the following criteria:

- 1) *E. coli* bacteria per 100 ml of water shall not exceed the following:

	Geometric Mean <sup>1</sup>
Freshwater <i>E. coli</i> (N/100 ml)	126

<sup>1</sup>For a minimum of four samples taken during any calendar month.

The *E. coli* bacteria effluent limitation was changed after the public comment period. Due to the change in the Water Quality Standards's *E. coli* bacteria standard (126 n/100ml) that became effective February 1, 2010, the *E. coli* bacteria effluent limitation was revised to reflect the new standard. The previous *E. coli* bacteria effluent limitation had been 235 n/100 ml maximum.

**c) Receiving Stream Special Standards**

The State Water Control Board's Water Quality Standards, River Basin Section Tables (9VAC25-260-360, 370 and 380) designates the river basins, sections, classes, and special standards for surface waters of the

Commonwealth of Virginia. The receiving stream, Thompson's Creek, UT, is located within Section 7 of the Potomac River Basin. This section has been designated with a special standard of "b".

Special Standard "b" (Potomac Embayment Standards) established effluent standards for all sewage plants discharging into Potomac River embayments and for expansions of existing plants discharging into non-tidal tributaries of these embayments. 9VAC25-415, Policy for the Potomac Embayments controls point source discharges of conventional pollutants into the Virginia embayment waters of the Potomac River, and their tributaries, from the fall line at Chain Bridge in Arlington County to the Route 301 bridge in King George County. The regulation sets effluent limits for BOD<sub>5</sub>, total suspended solids, phosphorus, and ammonia, to protect the water quality of these high profile waterbodies.

d) Threatened or Endangered Species

The Virginia DGIF Fish and Wildlife Information System Database was searched on January 11, 2010, for records to determine if there are threatened or endangered species in the vicinity of the discharge. The *Haliaeetus leucocephalus* (bald eagle) was identified within a 2 mile radius of the discharge. This species is listed as Federal Species of Concern and State Threatened. The limits proposed in this draft permit are protective of the Virginia Water Quality Standards and therefore, is protective the threatened and endangered species found near the discharge. See Attachment No. 5

**16. Antidegradation (9VAC25-260-30):**

All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

The receiving stream has been classified as Tier 1 based on an evaluation of the receiving stream being an ephemeral stream that has little or no flow except during or following periods of rainfall. Permit limits proposed have been established by determining wasteload allocations which will result in attaining and/or maintaining all water quality criteria which apply to the receiving stream, including narrative criteria. These wasteload allocations will provide for the protection and maintenance of all existing uses.

**17. Effluent Screening, Wasteload Allocation, and Effluent Limitation Development :**

To determine water quality-based effluent limitations for a discharge, the suitability of data must first be determined. Data is suitable for analysis if one or more representative data points are equal to or above the quantification level ("QL") and the data represent the exact pollutant being evaluated.

Next, the appropriate Water Quality Standards (WQS) are determined for the pollutants in the effluent. Then, the Wasteload Allocations (WLA) are calculated. In this case since the critical flows 7Q10 and 1Q10 have been determined to be zero, the WLA's are equal to the WQS. The WLA values are then compared with available effluent data to determine the need for effluent limitations. Effluent limitations are needed if the 97th percentile of the daily effluent concentration values is greater than the acute wasteload allocation or if the 97th percentile of the four-day average effluent concentration values is greater than the chronic wasteload allocation. Effluent limitations are based on the most limiting WLA, the required sampling frequency, and statistical characteristics of the effluent data.

a) Effluent Screening:

This wastewater treatment plant has not been built; therefore, there is no effluent data to review.

b) Mixing Zones and Wasteload Allocations (WLAs):

Wasteload allocations (WLAs) are calculated for those parameters in the effluent with the reasonable potential to cause an exceedance of water quality criteria. The basic calculation for establishing a WLA is the steady state complete mix equation:

$$WLA = \frac{C_o [Q_e + (f)(Q_s)] - [(C_s)(f)(Q_s)]}{Q_e}$$

Where:

WLA	=	Wasteload allocation
$C_o$	=	In-stream water quality criteria
$Q_e$	=	Design flow
$Q_s$	=	Critical receiving stream flow (1Q10 for acute aquatic life criteria; 7Q10 for chronic aquatic life criteria; 30Q10 for chronic ammonia criteria; harmonic mean for carcinogen-human health criteria; and 30Q5 for non-carcinogen human health criteria)
$f$	=	Decimal fraction of critical flow
$C_s$	=	Mean background concentration of parameter in the receiving stream.

The water segment receiving the discharge via Outfall 001 is considered to have a 7Q10 and 1Q10 of 0.0 MGD. As such, there is no mixing zone and the WLA is equal to the  $C_o$ .

Staff derived wasteload allocations where parameters are reasonably expected to be present in an effluent (e.g., total residual chlorine where chlorine is used as a means of disinfection) and where effluent data indicate the pollutant is present in the discharge above quantifiable levels. With regard to the Outfall 001 discharge, ammonia as N is likely present since this is a WWTP treating sewage and total residual chlorine may be present since chlorine is used for disinfection.

c) Effluent Limitations from the Policy for the Potomac River Embayment (PPRE)(9VAC25-415), Outfall 001

The PPRE included monthly average effluent limits that apply to all sewage treatment plants:

<u>Parameter</u>	<u>Monthly Average (mg/L)</u>
cBOD <sub>5</sub>	5
Total Suspended Solids	6
Total Phosphorus	0.18
NH <sub>3</sub> (Apr 1 – Oct 31)	1

The PPRE states that the “above limitations shall not replace or exclude the discharge from meeting the requirements of the State’s Water Quality Standards (9 VAC 25-260-10 et seq.).”

d) Effluent Limitations Toxic Pollutants, Outfall 001

9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits.

The VPDES Permit Regulation at 9VAC25-31-230.D. requires that monthly and weekly average limitations be imposed for continuous discharges from POTWs and monthly average and daily maximum limitations be imposed for all other continuous non-POTW discharges.

1) Ammonia as N:

Since the facility has not been built and no stream data is available, staff has determined that the previous pH and temperature values are appropriate and will be carried forward in this permit reissuance. DEQ guidance suggests using a sole data point of 9.0 mg/L for discharges containing

domestic sewage to ensure the evaluation adequately addresses the potential for ammonia to be present in the discharge containing domestic sewage.

Because the discharge has been considered as intermittent in nature, the chronic criteria is protected and only the acute criteria needs to be considered for establishing effluent limitations.

#### Ammonia as N (April through October)

The following table summarizes the ammonia limits evaluated during this reissuance:

Table No. 3-Ammonia (April through October)	
Source of the Monthly Average Limit	Monthly Average Limit
Policy for the Potomac River Embayments (PPRE)	1.0 mg/L
Wasteload Allocation Evaluation (Acute Toxicity)	13 mg/L

Since the PPRE is more stringent than the current Water Quality Criteria, the April through October monthly average limit will be 1.0 mg/L. The weekly average limit will be 1.5 mg/L based on the PPRE monthly average limit of 1.0 mg/L multiplied by a 1.5 multiplier.

#### Ammonia as N (November through March)

The 2004 permit contained ammonia monthly average effluent limitations for November through March as 20 mg/L based on acute toxicity criteria of 19.89 mg/L. During this permit reissuance, calculations determined that the acute toxicity criteria of 13 mg/L is required to maintain water quality standards; therefore, the ammonia monthly average effluent limitation for November through March has been reduced to 13 mg/L. See Attachment 6

#### 2) Total Residual Chlorine:

Chlorine is used for disinfection and is potentially in the discharge. Staff calculated WLAs for TRC using current critical flows and the mixing allowance. In accordance with current DEQ guidance, staff used a default data point of 0.2 mg/L and the calculated WLAs to derive limits. A monthly average of 0.02 mg/L and a weekly average limit of 0.02 mg/L are proposed for this discharge (see Attachment 7. Again, the TRC effluent limitations are based on acute toxicity since the discharge has been determined to be intermittent.

#### 3) Metals/Organics:

No metals or organics data were required for submittal for this permit reissuance due to the design flow of the facility. Only those facilities with a design flow of equal to or greater than 1 MGD are required to provide metals and organic data. Therefore; no metals or organics effluent limitations are being incorporated into the permit.

#### d) Effluent Limitations and Monitoring, Outfall 001 – Conventional and Non-Conventional Pollutants

There are no changes to dissolved oxygen (D.O.), carbonaceous biochemical oxygen demand-5 day (cBOD<sub>5</sub>), total suspended solids (TSS), Total Phosphorus, and pH limitations proposed. The Ammonia as N (November – March) has been reduced to 13 mg/L as determined by calculations required to maintain water quality standards.

Carbonaceous biochemical oxygen demand-5 day (cBOD<sub>5</sub>), Total Suspended Solids, Total Phosphorus, and ammonia (April - October) are based on the effluent Limitations from the Policy for the Potomac River Embayment (PPRE) (9VAC25-415).

The weekly average concentrations for the PPRE parameters were calculated by using the monthly average concentration and multiplying by a 1.5 multiplier.

pH limitations are set at the water quality criteria.

*E. coli* limitations are in accordance with the Water Quality Standards 9VAC25-260-170 (effective February 1, 2010).

#### 18. Antibacksliding:

All limits in this permit are at least as stringent as those previously established. Backsliding does not apply to this reissuance.

#### 19. Effluent Limitations/Monitoring Requirements:

Design flow is 0.0009 MGD.

Effective Dates: Initiating with the CTO issuance for the facility and until the permit's expiration date, the permittee is authorized to discharge from Outfall Number 001.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS					MONITORING REQUIREMENTS <sup>(1)</sup>	
		Monthly Average		Weekly Average		Minimum	Maximum	Frequency Sample Type
Flow (MGD)	NA	NL		NA		NA	NL	1/3M Estimate
pH	3	NA		NA		6.0 S.U.	9.0 S.U.	1/3M Grab
CBOD <sub>5</sub>	5	5.0 mg/L	0.020 kg/day	7.5 mg/L	0.030 kg/day	NA	NA	1/3M Grab
Total Suspended Solids (TSS)	5	6.0 mg/L	0.020 kg/day	9.0 mg/L	0.030 kg/day	NA	NA	1/3M Grab
DO	3	NA		NA		5.0 mg/L	NA	1/3M Grab
Ammonia, as N (March - November)	3	13 mg/L		13 mg/L		NA	NA	1/3M Grab
Ammonia, as N (April - October)	3,5	1.0 mg/L	0.003 kg/day	1.5 mg/L	0.005 kg/day	NA	NA	1/3M Grab
Total Phosphorus	5	0.18 mg/L	0.0006 kg/day	0.27 mg/L	0.0009 kg/day	NA	NA	1/3M Grab
<i>E. coli</i> (Geometric Mean)	3	126 n/100 mls		NA		NA	NA	1/3M Grab
Total Residual Chlorine (after contact tank)	2, 3, 4	NA		NA		1.0 mg/L	NA	1/3M Grab
Total Residual Chlorine (after dechlorination)	3	0.020 mg/L		0.020 mg/L		NA	NA	1/3M Grab

The basis for the limitations codes are:

1. Federal Effluent Requirements
2. Best Professional Judgement
3. Water Quality Standards
4. DEQ Disinfection Guidance
5. Policy for Potomac River Embayments (9VAC25-410 *et seq*)

MGD = Million gallons per day.

NA = Not applicable.

NL = No limit; monitor and report.

S.U. = Standard units.

1/D = Once every day.

1/3M = Once every three months.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

<sup>(1)</sup> The quarterly monitoring periods shall be January through March, April through June, July through September, and October through December. The DMR shall be submitted no later than the 10<sup>th</sup> day of the month following the monitoring period.

#### 20. Other Permit Requirements:

- a) Part I.B. of the permit contains Discharge Monitoring Report monitoring and reporting requirements, additional chlorine monitoring requirements, quantification levels and compliance reporting instructions.

Until such time that the wastewater treatment plant has been issued a Certificate to Operate (CTO), the permittee is required to submit annual Discharge Monitoring Reports by no later than January 10<sup>th</sup> of each year.

These additional chlorine requirements are necessary per the Sewage Collection and Treatment Regulations at 9VAC25-70 and by the Water Quality Standards at 9VAC25-260-170. A minimum chlorine residual must be

maintained at the exit of the chlorine contact tank to assure adequate disinfection. No more than 10% of the monthly test results for TRC at the exit of the chlorine contact tank shall be  $<1.0$  mg/L with any TRC  $<0.6$  mg/L considered a system failure. Monitoring at numerous STPs has concluded that a TRC residual of 1.0 mg/L is an adequate indicator of compliance with the *E. coli* criteria. *E. coli* limits are defined in this section as well as monitoring requirements to take effect should an alternate means of disinfection be used.

9VAC25-31-190.L.4.c. requires an arithmetic mean for measurement averaging and 9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Specific analytical methodologies for toxics are listed in this permit section as well as quantification levels (QLs) necessary to demonstrate compliance with applicable permit limitations or for use in future evaluations to determine if the pollutant has reasonable potential to cause or contribute to a violation. Required averaging methodologies are also specified.

## 21. Other Special Conditions:

- a) 95% Capacity Reopener. The VPDES Permit Regulation at 9VAC25-31-200.B.4. requires all POTWs and PVOTWs develop and submit a plan of action to DEQ when the monthly average influent flow to their sewage treatment plant reaches 95% or more of the design capacity authorized in the permit for each month of any three consecutive month period. The facility is a PVOTW.
- b) O&M Manual Requirement. Required by Code of Virginia §62.1-44.19; Sewage Collection and Treatment Regulations, 9VAC25-790; VPDES Permit Regulation, 9VAC25-31-190.E. Within 90 days of Certificate to Operate issuance, the permittee shall submit for approval an Operation and Maintenance (O&M) to the Department of Environmental Quality, Northern Regional Office (DEQ-NRO). Future changes to the facility must be addressed by the submittal of a revised O&M Manual within 90 days of the changes. Non-compliance with the O&M Manual shall be deemed a violation of the permit.
- c) Licensed Operator Requirement. The Code of Virginia at §54.1-2300 et seq. and the VPDES Permit Regulation at 9VAC25-31-200 C, and Rules and Regulations for Waterworks and Wastewater Works Operators (18VAC160-20-10 et seq.) requires licensure of operators. This facility requires a Class III operator.
- d) Reliability Class. The Sewage Collection and Treatment Regulations at 9VAC25-790 require sewage treatment works to achieve a certain level of reliability in order to protect water quality and public health consequences in the event of component or system failure. Reliability means a measure of the ability of the treatment works to perform its designated function without failure or interruption of service. The facility is required to meet a Reliability Class of II.
- e) CTC, CTO Requirement. The Code of Virginia § 62.1-44.19; Sewage Collection and Treatment Regulations, 9VAC25-790 requires that all treatment works treating wastewater obtain a Certificate to Construct prior to commencing construction and to obtain a Certificate to Operate prior to commencing operation of the treatment works.
- f) Water Quality Criteria Reopener. The VPDES Permit Regulation at 9VAC25-31-220 D. requires establishment of effluent limitations to ensure attainment/maintenance of receiving stream water quality criteria. Should effluent monitoring indicate the need for any water quality-based limitations, this permit may be modified or alternatively revoked and reissued to incorporate appropriate limitations.
- g) Sludge Reopener. The VPDES Permit Regulation at 9VAC25-31-220.C. requires all permits issued to treatment works treating domestic sewage (including sludge-only facilities) include a reopener clause allowing incorporation of any applicable standard for sewage sludge use or disposal promulgated under Section 405(d) of the CWA. The facility includes a sewage treatment works.
- h) Sludge Use and Disposal. The VPDES Permit Regulation at 9VAC25-31-100.P; 220.B.2., and 420 through 720, and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information on

their sludge use and disposal practices and to meet specified standards for sludge use and disposal. The facility includes a treatment works treating domestic sewage.

Permit Section Part II. Part II of the permit contains standard conditions that appear in all VPDES Permits. In general, these standard conditions address the responsibilities of the permittee, reporting requirements, testing procedures and records retention.

**23. Changes to the Permit from the Previously Issued Permit:**

- a) Special Conditions:
  - 1. The Indirect Dischargers special condition was deleted due to the fact that this facility will only serve a private residence.
  - 2. The Materials Handling/Storage special condition was deleted due to the fact that this facility is a private residence.
  - 3. The Nutrient Enriched Waters Reopener special condition was deleted because this special standard has been deleted from the Virginia Water Quality Standards.
- b) Monitoring and Effluent Limitations:
  - 1. The Ammonia as Nitrogen effluent limitation for November – March was reduced to 13 mg/L from 20 mg/L as a result of the 2010 freshwater water quality criteria analysis.
  - 2. The *E. coli* bacteria effluent limitation was changed after the public comment period. Due to the change in the Water Quality Standards's *E. coli* bacteria standard (126 n/100ml) that became effective February 1, 2010, the *E. coli* bacteria effluent limitation was revised to reflect the new standard. The previous *E. coli* bacteria effluent limitation had been 235 n/100 ml maximum.
  - 3. The annual DMR submittal requirement special condition was removed. The monthly DMR will be required once the CTO has been issued for the facility.

**24. Variances/Alternate Limits or Conditions:**

There are no variances or alternate limits or conditions contained in this permit reissuance.

**25. Public Notice Information:**

First Public Notice Date: March 26, 2010

Second Public Notice Date: April 2, 2010

Public Notice Information is required by 9VAC25-31-280 B. All pertinent information is on file and may be inspected, and copied by contacting the: DEQ Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193, Telephone No. (703) 583-3925, joan.crowther@deq.virginia.gov. See Attachment 8 for a copy of the public notice document.

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer and of all persons represented by the commenter/requester, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit. Requests for public hearings shall state 1) the reason why a hearing is requested; 2) a brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit; and 3) specific references, where possible, to terms and conditions of the permit with suggested revisions. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given. The public may request an electronic copy of the draft permit and fact sheet or review the draft permit and application at the DEQ Northern Regional Office by appointment.

**26. 303 (d) Listed Stream Segments and Total Max. Daily Loads (TMDL):**

Thompson's Creek, UT was not specifically included in the Potomac River Watershed PCB TMDL (approved by EPA on October 31, 2007) nor will it be in the pending Benthic TMDL (due by 2016), but all upstream facilities were or will be considered during TMDL implementation. Please see the Planning Statement (Attachment 3) for more information.

TMDL Reopener: This special condition is to allow the permit to be reopened if necessary to bring it in compliance with any applicable TMDL that may be developed and approved for the receiving stream.



**27. Additional Comments:****1) Development of the Policy for the Potomac River Embayments (9 VAC 25-415-10):**

The State Water Control Board adopted the Potomac Embayment Standards (PES) in 1971 to address serious nutrient enrichment problems evident in the Virginia embayments and Potomac River at the time. These standards applied to sewage treatment plants discharging into Potomac River embayments in Virginia and for expansions of existing plants discharging into the non-tidal tributaries of these embayments. The standards were actually effluent limitations for BOD<sub>5</sub>, unoxidized nitrogen, total phosphorus, and total nitrogen:

<u>Parameter</u>	<u>PES Standard (monthly average)</u>
BOD <sub>5</sub>	3 mg/L
Unoxidized Nitrogen	1 mg/L (April – October)
Total Phosphorus	0.2 mg/L
Total Nitrogen	1 mg/L (when technology is available)

Based upon these standards, several hundred million dollars were spent during the 1970s and 1980s upgrading major treatment plants in the City of Alexandria and the Counties of Arlington, Fairfax, Prince William, and Stafford. Today, these localities operate advanced wastewater treatment plants which have contributed a great deal to the dramatic improvement in the water quality of the upper Potomac estuary.

Before the planned upgrades at these facilities were completed, and the fact that water quality improved, questions arose over the high capital and operating costs that would result from meeting all of the requirements contained in the PES. Questions also arose due to the fact that the PES were blanket effluent limitations that applied equally to different bodies of water. Therefore, in 1978, the State Water Control Board committed to reevaluate the PES. In 1984, a major milestone was reached when the Virginia Institute of Marine Science (VIMS) completed state-of-the-art models for each of the embayments. The Board then selected the Northern Virginia Planning District Commission (NVPDC) to conduct wasteload allocation studies of the Virginia embayments using the VIMS models. In 1988, these studies were completed and effluent limits that would protect the embayments and the mainstem of the Potomac River were developed for each major facility.

Since the PES had not been amended or repealed, VPDES permits had included the PES standards as effluent limits. Since the plants could not meet all of the requirements of the PES, the plant owners operated under consent orders or consent decrees with operating effluent limits for the treatment plants that were agreed upon by the owners and the Board.

In 1991 and 1992, several Northern Virginia jurisdictions with embayment treatment plants submitted a petition to the Board requesting that the Board address the results of the VIMS/NVPDC studies. Their petition requested revised effluent limitations and a defined modeling process for determining effluent limitations.

The recommendations in the petition were designed to protect the extra sensitive nature of the embayments along with the Potomac River which have become a popular recreational resource during recent years. The petition included requirements more stringent than would be applied using the results of the modeling/allocation work conducted in the 1980s. With the inherent uncertainty of modeling, the petitioners question whether the results of modeling would provide sufficient protection for the embayments. By this petition, the local governments asked for continued special protection for the embayments based upon a management approach that uses stringent effluent limits. They believe this approach has proven successful over the past two decades. In addition the petition included a modeling process that will be used to determine if more stringent limits are needed in the future due to increased wastewater discharges.

The State Water Control Board adopted the petition, with revisions, as a regulation on September 12, 1996. The regulation is entitled *Policy for the Potomac River Embayments* (9 VAC25-415-10). On the same date, the Board repealed the old PES. The new regulation became effective on April 3, 1997, and contains the following effluent limits:

<u>Parameter</u>	<u>PPRE Standard (monthly average)</u>
cBOD <sub>5</sub>	5 mg/L
TSS	6 mg/L
Total Phosphorus	0.18 mg/L
Ammonia as Nitrogen	1 mg/L (April - October)

9 VAC 25-415-50 Water Quality Monitoring. The Policy says "that water quality models may be required to predict the effects of wastewater discharges on the water quality of the receiving waterbody, the embayment, and the Potomac River. The purpose of the modeling shall be to determine if more stringent limits than those required by 9 VAC 25-415-40 (the Policy's effluent limitations) are required to meet water quality standards."

**27. Additional Comments:**

Previous Board Action(s): There has been no previous board action for this facility.

Staff Comments: The delay in the reissuance of the permit was due to permittee's lack of response in submitting the permit application package in a timely fashion and staff's involvement in an enforcement action for another permittee.

Public Comment: No comments were received during the public notice

EPA Checklist: The checklist can be found in Attachment 9.

Young J. Kim Wastewater Treatment Plant  
Fact Sheet Attachments

Attachment	Description
1	Flow Frequency Memo dated August 7, 1998
2	USGS Topographic Map – Fort Belvoir #193B
3	Planning Statement dated November 5, 2009
4	Freshwater Water Quality Criteria/ Wasteload Allocated Analysis dated January 14, 2010 for both permit effluent tiers (summer and winter)
5	DGIF Threatened and Endangered Species Database Search dated December 30, 2009
6	2010 Permit Reissuance Ammonia (November – March) effluent Calculation dated 1/14/10 and Ammonia (April – October) dated 1/14/10
7	2010 Permit Reissuance TRC Effluent Calculations dated 2/11/10
8	Public Notice
9	EPA Checklist dated February 22, 2010

**MEMORANDUM**

**DEPARTMENT OF ENVIRONMENTAL QUALITY - WATER DIVISION**  
Water Quality Assessments and Planning  
629 E. Main Street P.O. Box 10009 Richmond, Virginia 23240

**SUBJECT:** Flow Frequency Determination  
Young J. Kim STP - VA#0090026

**TO:** M. Sue Heddings, NRO

**FROM:** Paul E. Herman, P.E., WQAP *Paul*

**DATE:** August 7, 1998

**COPIES:** Ron Gregory, Charles Martin, File

**RECEIVED**

AUG 10 1998

Northern VA. Region  
Dept. of Env. Quality

The Young J. Kim STP discharges to an unnamed tributary of the Belmont Bay near Woodbridge, VA. Stream flow frequencies are required at this site for use by the permit writer in developing effluent limitations for the VPDES permit.

The values at the discharge point were determined by inspection of the USGS Fort Belvoir Quadrangle topographical map which shows the receiving stream as a dry ravine at the discharge point. The dry ravine drains to an intermittent stream. The flow frequencies for dry ravines and intermittent streams are 0.0 cfs for the 1Q10, 7Q10, 30Q5, high flow 1Q10, high flow 7Q10, and the harmonic mean. For modeling purposes, flow frequencies have been determined for the first perennial reach downstream of the discharge point.

The Policy for the Potomac Embayments (PES) apply to the perennial point below this facility thereby requiring special flow frequency analyses to determine the 1Q10 and 7Q10 during the winter months (November - March) defined by the Standard. The 1Q10 and 7Q10 flow frequencies for the summer months (April - October) are based on the analysis of data available for the period of record at the selected reference gaging station.

The seasonal, temperature based, flow frequencies have been determined for the reference gage used in this analysis; Accotink Creek near Annandale, VA (#01654000) which has been operated by the USGS since 1947. The gage is located at the Route 620 bridge in Fairfax County, VA. The flow frequencies for the gage and the perennial point are presented below. The values at the perennial point were determined using drainage area proportions and do not address any withdrawals, discharges, or springs which may lie upstream.

Attachment 1

Accotink Creek near Annandale, VA (#01654000):

Drainage Area = 23.5 mi<sup>2</sup>

1Q10 = 0.24 cfs	PES 1Q10 = 2.6 cfs
7Q10 = 0.49 cfs	PES 7Q10 = 3.5 cfs
30Q5 = 2.4 cfs	HM = 6.1 cfs

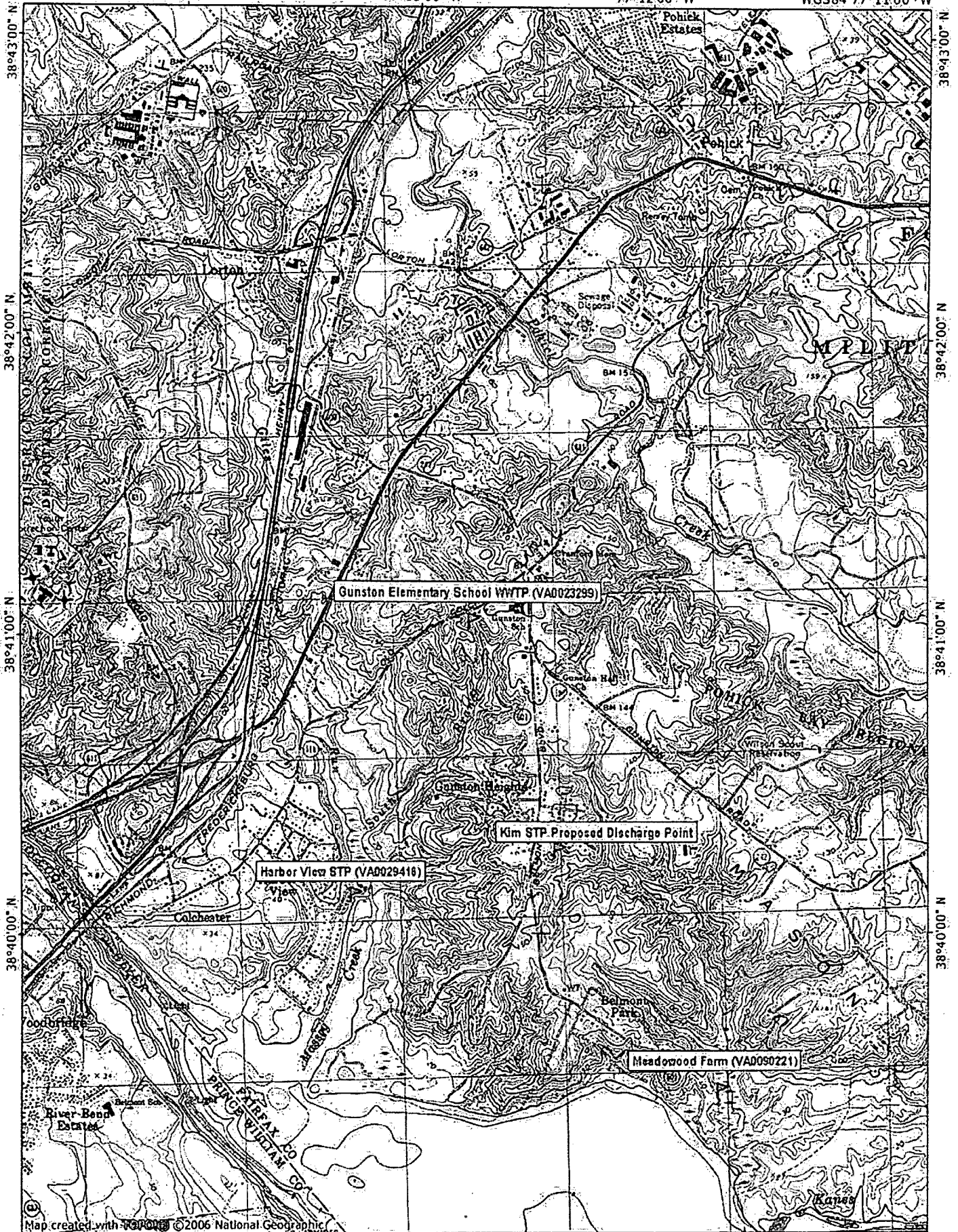
UT to Belmont Bay at perennial point:

Drainage Area = 0.35 mi<sup>2</sup>

1Q10 = 0.004 cfs	PES 1Q10 = 0.039 cfs
7Q10 = 0.007 cfs	PES 7Q10 = 0.052 cfs
30Q5 = 0.036 cfs	HM = 0.091 cfs

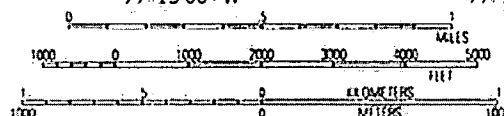
Be advised, the seasonal tiering defined in the Policy for Potomac Embayments is not based on stream flow. Rather, the tiers are temperature based. Procedures for establishing flows during the months included in a temperature tier are not addressed in Section III-A pages 12-17 of the "Virginia Water Control Board VPDES Technical Reference Manual".

If you have any questions concerning this analysis, please let me know.



Map created with © 2006 National Geographic

**NATIONAL  
GEOGRAPHIC**



Attachment 2

MN:TN

10 1/2°

02/22/10

To: Joan Crowther  
From: Jennifer O'Reilly

Date: November 5, 2009  
Subject: Planning Statement for Young J. Kim Wastewater Treatment Plant  
Permit No: VA0090026

Discharge Type: Municipal, Minor  
Discharge Flow: 0.0009 MGD

Receiving Stream: Belmont Bay, UT  
Latitude / Longitude: 38° 40' 17" / 77° 12' 24"  
Waterbody ID: A25/PL48

1. Is there monitoring data for the receiving stream?

There is no monitoring data for the unnamed tributary to Belmont Bay

- If yes, please attach latest summary.
- If no, where is the nearest downstream monitoring station.

The nearest downstream DEQ water quality monitoring station with ambient data is Station 1aOCC002.47, located in the Occoquan Bay, approximately 3.6 miles downstream from Outfall 001. This monitoring station is located in assessment unit VAN-A25E OCC02A00, which extends 0.5 mile around the around station 1aOCC002.47. This segment is also part of the Chesapeake Bay Program's (CBP) Potomac Tidal Freshwater (POTTF) segment.

The following is the monitoring summary for Station 1aOCC002.47, as taken from the 2008 Integrated Assessment:

*Class II, Section 6, special stds. b, y.*

*DEQ ambient and fish tissue/sediment monitoring 1aOCC002.47, at Buoy 6.*

*The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazards Control, PCB fish consumption advisory. The recreation and wildlife uses are considered fully supporting.*

*The submerged aquatic vegetation data is assessed as fully supporting the aquatic life use. For the open water aquatic life subuse, the thirty day mean is acceptable, however, the seven day mean and instantaneous levels have not been assessed. Additionally, sediment data revealed excursions above the Estuarine NOAA-based ER-M Sediment Screening Values (SV) of 0.71 ppm (dry weight) for mercury (Hg) in 2001 and of 7 ppb (dry weight) for DDT in 2004. Both of these exceedances were noted by observed effects for the aquatic life use.*

2. Is the receiving stream on the current 303(d) list?

The unnamed tributary to Belmont Bay is not on the current 303(d) list.

- If yes, what is the impairment? N/A
- Has the TMDL been prepared? N/A
- If yes, what is the WLA for the discharge? N/A
- If no, what is the schedule for the TMDL? N/A

3. If the answer to (2) above is no, is there a downstream 303(d) listed impairment?

Yes, there are several downstream listed impairments for Occoquan Bay.

- If yes, what is the impairment?

1. Fish Consumption Use Impairment (PCB in Fish Tissue):

The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazards Control, PCB fish consumption advisory. The advisory, dated 4/19/99 and modified 12/13/04, limits consumption of American eel, bullhead catfish, channel catfish less than eighteen inches long, largemouth bass, anadromous (coastal) striped bass, sunfish species, smallmouth bass, white catfish, white perch, gizzard shad, and yellow perch to no more than two meals per month. The advisory also bans the consumption of carp and channel catfish greater than eighteen inches long. The affected area includes the tidal portions of the following tributaries and embayments from the I-395 bridge (above the Woodrow Wilson Bridge) to the Potomac River Bridge at Route 301: Fourmile Run, Hunting Creek, Little Hunting Creek, Pohick Creek, Accotink Creek, Occoquan River, Neabsco Creek, Powells Creek, Quantico Creek, Chopawamsic Creek, Aquia Creek, and Potomac Creek.

The following segments are listed as impaired for the fish consumption use:

1. VAN-A25E\_OCC04A02 - extends 0.5 mile around the monitoring station 1AOCC-766-ALL (coordinates 38.647, -77.195). Portion of CBP segment POTTF.
2. VAN-A25E\_OCC20A02 - includes all waters of the Occoquan and Belmont Bays not included in other delineated segments. Portion of CBP segment POTTF.
3. VAN-A25E\_OCC03A04 - extends 0.5 mile around Coastal 2000 monitoring station 1aOCC002.62. Portion of CBP segment POTTF.
4. VAN-A25E\_OCC02A00 - extends 0.5 mile around the around monitoring station 1aOCC002.47. Portion of CBP segment POTTF.
5. VAN-A25E\_OCC01A04 - extends 0.5 mile around the Coastal 2000 monitoring station 1aOCC000.06. The downstream limit is the state line at the Potomac River.



Portion of CBP segment POTTF.

2. Aquatic Life Use Impairment:

A. **VAN-A25E\_OCC03A04** (Estuarine Bioassessments)- Based on the Coastal 2000 weight of evidence analysis, utilizing bulk chemical data, toxicity test data, and an evaluation of benthic community conditions. Conclusions noted that some possibilities for benthic alteration could be a result of nutrient enrichment, habitat condition, habitat type, or a high energy environment. However, toxic contaminants are an unlikely cause of the stressed community. The low diversity of benthic faunal taxa suggest organic/nutrient enrichment, but bottom dissolved oxygen at the time of sampling was not depressed (10.5 mg/L). Note that sediment total organic carbon was very low (<0.2%) and that the sample was almost all sand (83.3%). It is possible that toxics were present nearby, but the sediment sample collected did not indicate any contamination problem.

B. **VAN-A25E\_OCC02A00** (pH)- For the 2006 water quality assessment, sufficient excursions above the criterion range for pH (5 of 16 samples - 31.2%) were recorded at DEQ's ambient water quality monitoring station (1aOCC002.47) at Buoy #6, midway into Occoquan Bay, to assess this stream segment as not supporting of the aquatic life use goal. While data from the 2008 assessment window indicate improvement for the pH impairment at monitoring station 1aOCC002.47 (1 of 45 samples - 2.2%), continuous monitoring data collected at that station reveal that pH issues may still exist. However, methods for assessing continuous monitoring data have not been established. The pH impairment shall remain.

\*\*\*The pH impairment listing for segment VAN-A25E\_OCC02A00 is based upon the 2008 Integrated Report. The EPA has approved the removal of the pH impairment as of May 28, 2009, and this segment will be delisted for pH in the 2010 Integrated Report.

- Has a TMDL been prepared?

Yes – the Potomac River Watershed PCB TMDL was completed and approved by the EPA on 10/31/2007

A benthic TMDL has not yet been prepared.

- Will the TMDL include the receiving stream?

The unnamed tributary to Belmont Bay was/will not specifically be included in the TMDL, but all upstream facilities were/will be considered during TMDL development.

- Is there a WLA for the discharge?

There is no WLA for this discharge at this time.

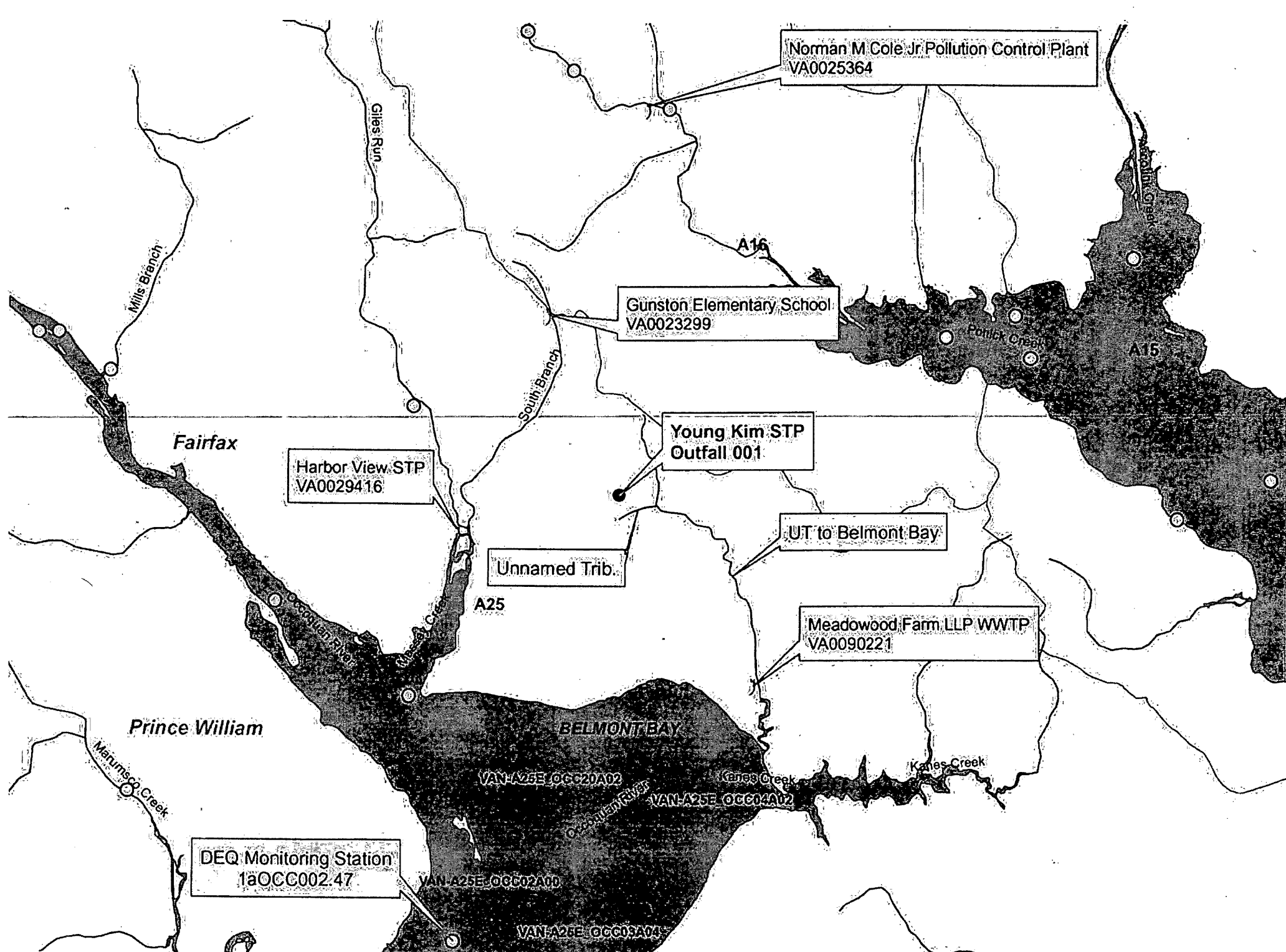
- What is the schedule for the TMDL?

PCB TMDL for fish consumption use – approved 10/31/07  
Benthic TMDL for aquatic life use – due by 2016

\*\*\*As noted above, a pH TMDL will not be necessary as the EPA has approved the removal of the pH impairment in the Occoquan Bay.

4. Is there monitoring or other conditions that Planning/Assessment needs in the permit?

Not at this time.



# FRESHWATER WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Kim STP (Winter November - March)

Permit No.: VA0090026

Receiving Stream: Thompson's Creek, UT

Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information		Stream Flows		Mixing Information		Effluent Information	
Mean Hardness (as CaCO3) =	50 mg/L	1Q10 (Annual) =	0 MGD	Annual - 1Q10 Mix =	100 %	Mean Hardness (as CaCO3) =	50 mg/L
90% Temperature (Annual) =	15 deg C	7Q10 (Annual) =	0 MGD	7Q10 Mix =	100 %	90% Temp (Annual) =	25 deg C
90% Temperature (Wet season) =	deg C	30Q10 (Annual) =	0 MGD	30Q10 Mix =	100 %	90% Temp (Wet season) =	deg C
90% Maximum pH =	7.5 SU	1Q10 (Wet season) =	0 MGD	Wet Season - 1Q10 Mix =	100 %	90% Maximum pH =	7.5 SU
10% Maximum pH =	SU	30Q10 (Wet season) =	0 MGD	30Q10 Mix =	100 %	10% Maximum pH =	SU
Tier Designation (1 or 2) =	1	30Q5 =	0 MGD			Discharge Flow =	0.0009 MGD
Public Water Supply (PWS) Y/N? =	y	Harmonic Mean =	0 MGD				
Trout Present Y/N? =	y						
Early Life Stages Present Y/N? =	y						

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Aceonaphthene	0	-	-	6.7E+02	9.9E+02	-	-	6.7E+02	9.9E+02	-	-	-	-	-	-	-	-	-	-	6.7E+02	9.9E+02
Acrolein	0	-	-	6.1E+00	9.3E+00	-	-	6.1E+00	9.3E+00	-	-	-	-	-	-	-	-	-	-	6.1E+00	9.3E+00
Acrylonitrile <sup>C</sup>	0	-	-	5.1E-01	2.5E+00	-	-	5.1E-01	2.5E+00	-	-	-	-	-	-	-	-	-	-	5.1E-01	2.5E+00
Aldrin <sup>C</sup>	0	3.0E+00	-	4.9E-04	5.0E-04	3.0E+00	-	4.9E-04	5.0E-04	-	-	-	-	-	-	-	-	3.0E+00	-	4.9E-04	5.0E-04
Ammonia-N (mg/l) (Yearly)	0	1.33E+01	2.22E+00	-	-	1.3E+01	2.2E+00	-	-	-	-	-	-	-	-	-	-	1.3E+01	2.2E+00	-	-
Ammonia-N (mg/l) (High Flow)	0	1.33E+01	4.3E+00	-	-	1.3E+01	4.4E+00	-	-	-	-	-	-	-	-	-	-	1.3E+01	4.4E+00	-	-
Anthracene	0	-	-	8.3E+03	4.0E+04	-	-	8.3E+03	4.0E+04	-	-	-	-	-	-	-	-	-	-	8.3E+03	4.0E+04
Antimony	0	-	-	5.6E+00	6.4E+02	-	-	5.6E+00	6.4E+02	-	-	-	-	-	-	-	-	-	-	5.6E+00	6.4E+02
Arsenic	0	3.4E+02	1.5E+02	1.0E+01	-	3.4E+02	1.5E+02	1.0E+01	-	-	-	-	-	-	-	-	-	3.4E+02	1.5E+02	1.0E+01	-
Barium	0	-	-	2.0E+03	-	-	-	2.0E+03	-	-	-	-	-	-	-	-	-	-	-	2.0E+03	-
Banzono <sup>C</sup>	0	-	-	2.2E+01	5.1E+02	-	-	2.2E+01	5.1E+02	-	-	-	-	-	-	-	-	-	-	2.2E+01	5.1E+02
Benizidino <sup>C</sup>	0	-	-	8.6E-04	2.0E-03	-	-	8.6E-04	2.0E-03	-	-	-	-	-	-	-	-	-	-	8.6E-04	2.0E-03
Benzo (a) anthracene <sup>C</sup>	0	-	-	3.8E-02	1.8E-01	-	-	3.8E-02	1.8E-01	-	-	-	-	-	-	-	-	-	-	3.8E-02	1.8E-01
Benzo (b) fluoranthene <sup>C</sup>	0	-	-	3.8E-02	1.8E-01	-	-	3.8E-02	1.8E-01	-	-	-	-	-	-	-	-	-	-	3.8E-02	1.8E-01
Benzo (k) fluoranthene <sup>C</sup>	0	-	-	3.8E-02	1.8E-01	-	-	3.8E-02	1.8E-01	-	-	-	-	-	-	-	-	-	-	3.8E-02	1.8E-01
Benzo (a) pyrene <sup>C</sup>	0	-	-	3.8E-02	1.8E-01	-	-	3.8E-02	1.8E-01	-	-	-	-	-	-	-	-	-	-	3.8E-02	1.8E-01
Bis-2-Chloroethyl Ether <sup>C</sup>	0	-	-	3.0E-01	5.3E+00	-	-	3.0E-01	5.3E+00	-	-	-	-	-	-	-	-	-	-	3.0E-01	5.3E+00
Bis-2-Chloroisopropyl Ether	0	-	-	1.4E+03	6.5E+04	-	-	1.4E+03	6.5E+04	-	-	-	-	-	-	-	-	-	-	1.4E+03	6.5E+04
Bis-2-Ethylhexyl Phthalate <sup>C</sup>	0	-	-	1.2E+01	2.2E+01	-	-	1.2E+01	2.2E+01	-	-	-	-	-	-	-	-	-	-	1.2E+01	2.2E+01
Bromoform <sup>C</sup>	0	-	-	4.3E+01	1.4E+03	-	-	4.3E+01	1.4E+03	-	-	-	-	-	-	-	-	-	-	4.3E+01	1.4E+03
Butylbenzylphthalate	0	-	-	1.5E+03	1.9E+03	-	-	1.5E+03	1.9E+03	-	-	-	-	-	-	-	-	-	-	1.5E+03	1.9E+03
Cadmium	0	1.8E+00	6.6E-01	5.0E+00	-	1.8E+00	6.6E-01	5.0E+00	-	-	-	-	-	-	-	-	-	1.8E+00	6.6E-01	5.0E+00	-
Carbon Tetrachloride <sup>C</sup>	0	-	-	2.3E+00	1.6E+01	-	-	2.3E+00	1.6E+01	-	-	-	-	-	-	-	-	-	-	2.3E+00	1.6E+01
Chlordane <sup>C</sup>	0	2.4E+00	4.3E-03	8.0E-03	8.1E-03	2.4E+00	4.3E-03	8.0E-03	8.1E-03	-	-	-	-	-	-	-	-	2.4E+00	4.3E-03	8.0E-03	8.1E-03
Chloride	0	8.6E+05	2.3E+05	2.5E+05	-	8.6E+05	2.3E+05	2.5E+05	-	-	-	-	-	-	-	-	-	8.6E+05	2.3E+05	2.5E+05	-
TRC	0	1.9E+01	1.1E+01	-	-	1.9E+01	1.1E+01	-	-	-	-	-	-	-	-	-	-	1.9E+01	1.1E+01	-	-
Chlorobenzene	0	-	-	1.3E+02	1.6E+03	-	-	1.3E+02	1.6E+03	-	-	-	-	-	-	-	-	-	-	1.3E+02	1.6E+03

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane <sup>C</sup>	0	—	—	4.0E+00	1.3E+02	—	—	4.0E+00	1.3E+02	—	—	—	—	—	—	—	—	—	—	4.0E+00	1.3E+02
Chloroform	0	—	—	3.4E+02	1.1E+04	—	—	3.4E+02	1.1E+04	—	—	—	—	—	—	—	—	—	—	3.4E+02	1.1E+04
2-Chloronaphthalene	0	—	—	1.0E+03	1.6E+03	—	—	1.0E+03	1.6E+03	—	—	—	—	—	—	—	—	—	—	1.0E+03	1.6E+03
2-Chlorophenol	0	—	—	8.1E+01	1.5E+02	—	—	8.1E+01	1.5E+02	—	—	—	—	—	—	—	—	—	—	8.1E+01	1.5E+02
Chlorpyrifos	0	8.3E-02	4.1E-02	—	—	8.3E-02	4.1E-02	—	—	—	—	—	—	—	—	—	—	8.3E-02	4.1E-02	—	—
Chromium III	0	3.2E+02	4.2E+01	—	—	3.2E+02	4.2E+01	—	—	—	—	—	—	—	—	—	—	3.2E+02	4.2E+01	—	—
Chromium VI	0	1.6E+01	1.1E+01	—	—	1.6E+01	1.1E+01	—	—	—	—	—	—	—	—	—	—	1.6E+01	1.1E+01	—	—
Chromium, Total	0	—	—	1.0E+02	—	—	—	1.0E+02	—	—	—	—	—	—	—	—	—	—	—	1.0E+02	—
Chrysene <sup>C</sup>	0	—	—	3.8E-03	1.8E-02	—	—	3.8E-03	1.8E-02	—	—	—	—	—	—	—	—	—	—	3.8E-03	1.8E-02
Copper	0	7.0E+00	5.0E+00	1.3E+03	—	7.0E+00	5.0E+00	1.3E+03	—	—	—	—	—	—	—	—	—	7.0E+00	5.0E+00	1.3E+03	—
Cyanide, Free	0	2.2E+01	5.2E+00	1.4E+02	1.6E+04	2.2E+01	5.2E+00	1.4E+02	1.6E+04	—	—	—	—	—	—	—	—	2.2E+01	5.2E+00	1.4E+02	1.6E+04
DDD <sup>C</sup>	0	—	—	3.1E-03	3.1E-03	—	—	3.1E-03	3.1E-03	—	—	—	—	—	—	—	—	—	—	3.1E-03	3.1E-03
DDE <sup>C</sup>	0	—	—	2.2E-03	2.2E-03	—	—	2.2E-03	2.2E-03	—	—	—	—	—	—	—	—	—	—	2.2E-03	2.2E-03
DDT <sup>C</sup>	0	1.1E+00	1.0E-03	2.2E-03	2.2E-03	1.1E+00	1.0E-03	2.2E-03	2.2E-03	—	—	—	—	—	—	—	—	1.1E+00	1.0E-03	2.2E-03	2.2E-03
Demeton	0	—	1.0E-01	—	—	—	1.0E-01	—	—	—	—	—	—	—	—	—	—	—	1.0E-01	—	—
Diazinon	0	1.7E-01	1.7E-01	—	—	1.7E-01	1.7E-01	—	—	—	—	—	—	—	—	—	—	1.7E-01	1.7E-01	—	—
Dibenz(a,h)anthracene <sup>C</sup>	0	—	—	3.8E-02	1.8E-01	—	—	3.8E-02	1.8E-01	—	—	—	—	—	—	—	—	—	—	3.8E-02	1.8E-01
1,2-Dichlorobenzene	0	—	—	4.2E+02	1.3E+03	—	—	4.2E+02	1.3E+03	—	—	—	—	—	—	—	—	—	—	4.2E+02	1.3E+03
1,3-Dichlorobenzene	0	—	—	3.2E+02	9.6E+02	—	—	3.2E+02	9.6E+02	—	—	—	—	—	—	—	—	—	—	3.2E+02	9.6E+02
1,4-Dichlorobenzene	0	—	—	6.3E+01	1.9E+02	—	—	6.3E+01	1.9E+02	—	—	—	—	—	—	—	—	—	—	6.3E+01	1.9E+02
3,3-Dichlorobenzidine <sup>C</sup>	0	—	—	2.1E-01	2.8E-01	—	—	2.1E-01	2.8E-01	—	—	—	—	—	—	—	—	—	—	2.1E-01	2.8E-01
Dichlorobromomethane <sup>C</sup>	0	—	—	5.5E+00	1.7E+02	—	—	5.5E+00	1.7E+02	—	—	—	—	—	—	—	—	—	—	5.5E+00	1.7E+02
1,2-Dichloroethane <sup>C</sup>	0	—	—	3.8E+00	3.7E+02	—	—	3.8E+00	3.7E+02	—	—	—	—	—	—	—	—	—	—	3.8E+00	3.7E+02
1,1-Dichloroethylene	0	—	—	3.3E+02	7.1E+03	—	—	3.3E+02	7.1E+03	—	—	—	—	—	—	—	—	—	—	3.3E+02	7.1E+03
1,2-trans-dichloroethylene	0	—	—	1.4E+02	1.0E+04	—	—	1.4E+02	1.0E+04	—	—	—	—	—	—	—	—	—	—	1.4E+02	1.0E+04
2,4-Dichlorophenol	0	—	—	7.7E+01	2.9E+02	—	—	7.7E+01	2.9E+02	—	—	—	—	—	—	—	—	—	—	7.7E+01	2.9E+02
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	—	—	1.0E+02	—	—	—	1.0E+02	—	—	—	—	—	—	—	—	—	—	—	1.0E+02	—
1,2-Dichloropropane <sup>C</sup>	0	—	—	5.0E+00	1.5E+02	—	—	5.0E+00	1.5E+02	—	—	—	—	—	—	—	—	—	—	5.0E+00	1.5E+02
1,3-Dichloropropene <sup>C</sup>	0	—	—	3.4E+00	2.1E+02	—	—	3.4E+00	2.1E+02	—	—	—	—	—	—	—	—	—	—	3.4E+00	2.1E+02
Dieldrin <sup>C</sup>	0	2.4E-01	5.6E-02	5.2E-04	5.4E-04	2.4E-01	5.6E-02	5.2E-04	5.4E-04	—	—	—	—	—	—	—	—	2.4E-01	5.6E-02	5.2E-04	5.4E-04
Diethyl Phthalate	0	—	—	1.7E+04	4.4E+04	—	—	1.7E+04	4.4E+04	—	—	—	—	—	—	—	—	—	—	1.7E+04	4.4E+04
2,4-Dimethoxyphenol	0	—	—	3.8E+02	8.5E+02	—	—	3.8E+02	8.5E+02	—	—	—	—	—	—	—	—	—	—	3.8E+02	8.5E+02
Dimethyl Phthalate	0	—	—	2.7E+05	1.1E+06	—	—	2.7E+05	1.1E+06	—	—	—	—	—	—	—	—	—	—	2.7E+05	1.1E+06
Di-n-Butyl Phthalate	0	—	—	2.0E+03	4.5E+03	—	—	2.0E+03	4.5E+03	—	—	—	—	—	—	—	—	—	—	2.0E+03	4.5E+03
2,4-Dinitrophenol	0	—	—	6.9E+01	5.3E+03	—	—	6.9E+01	5.3E+03	—	—	—	—	—	—	—	—	—	—	6.9E+01	5.3E+03
2-Methyl-4,6-Dinitrophenol	0	—	—	1.3E+01	2.8E+02	—	—	1.3E+01	2.8E+02	—	—	—	—	—	—	—	—	—	—	1.3E+01	2.8E+02
2,4-Dinitrotoluene <sup>C</sup>	0	—	—	1.1E+00	3.4E+01	—	—	1.1E+00	3.4E+01	—	—	—	—	—	—	—	—	—	—	1.1E+00	3.4E+01
Dioxin 2,3,7,8- tetrachlorodibenzo-p-dioxin	0	—	—	5.0E-08	5.1E-08	—	—	5.0E-08	5.1E-08	—	—	—	—	—	—	—	—	—	—	5.0E-08	5.1E-08
1,2-Diphenylhydrazine <sup>C</sup>	0	—	—	3.6E-01	2.0E+00	—	—	3.6E-01	2.0E+00	—	—	—	—	—	—	—	—	—	—	3.6E-01	2.0E+00
Alpha-Endosulfan	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	2.2E-01	5.6E-02	6.2E+01	8.9E+01	—	—	—	—	—	—	—	—	2.2E-01	5.6E-02	6.2E+01	8.9E+01
Beta-Endosulfan	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	2.2E-01	5.6E-02	6.2E+01	8.9E+01	—	—	—	—	—	—	—	—	2.2E-01	5.6E-02	6.2E+01	8.9E+01
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	—	—	2.2E-01	5.6E-02	—	—	—	—	—	—	—	—	—	—	2.2E-01	5.6E-02	—	—
Endosulfan Sulfate	0	—	—	6.2E+01	8.9E+01	—	—	6.2E+01	8.9E+01	—	—	—	—	—	—	—	—	—	—	6.2E+01	8.9E+01
Endrin	0	8.6E-02	3.6E-02	5.9E-02	6.0E-02	8.6E-02	3.6E-02	5.9E-02	6.0E-02	—	—	—	—	—	—	—	—	8.6E-02	3.6E-02	5.9E-02	6.0E-02
Endrin Aldehyde	0	—	—	2.9E-01	3.0E-01	—	—	2.9E-01	3.0E-01	—	—	—	—	—	—	—	—	—	—	2.9E-01	3.0E-01

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	5.3E+02	2.1E+03	--	--	5.3E+02	2.1E+03	--	--	--	--	--	--	--	--	--	--	5.3E+02	2.1E+03
Fluoranthene	0	--	--	1.3E+02	1.4E+02	--	--	1.3E+02	1.4E+02	--	--	--	--	--	--	--	--	--	--	1.3E+02	1.4E+02
Fluorone	0	--	--	1.1E+03	5.3E+03	--	--	1.1E+03	5.3E+03	--	--	--	--	--	--	--	--	--	--	1.1E+03	5.3E+03
Foaming Agents	0	--	--	5.0E+02	--	--	--	5.0E+02	--	--	--	--	--	--	--	--	--	--	--	5.0E+02	--
Guthion	0	--	1.0E-02	--	--	--	1.0E-02	--	--	--	--	--	--	--	--	--	--	--	1.0E-02	--	--
Heptachlor <sup>C</sup>	0	5.2E-01	3.8E-03	7.9E-04	7.9E-04	5.2E-01	3.8E-03	7.9E-04	7.9E-04	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	7.9E-04	7.9E-04
Heptachlor Epoxide <sup>C</sup>	0	5.2E-01	3.8E-03	3.9E-04	3.9E-04	5.2E-01	3.8E-03	3.9E-04	3.9E-04	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	3.9E-04	3.9E-04
Hexachlorobenzene <sup>C</sup>	0	--	--	2.8E-03	2.9E-03	--	--	2.8E-03	2.9E-03	--	--	--	--	--	--	--	--	--	--	2.8E-03	2.9E-03
Hexachlorobutadiene <sup>C</sup>	0	--	--	4.4E+00	1.8E+02	--	--	4.4E+00	1.8E+02	--	--	--	--	--	--	--	--	--	--	4.4E+00	1.8E+02
Hexachlorocyclohexane																					
Alpha-BHC <sup>C</sup>	0	--	--	2.6E-02	4.9E-02	--	--	2.6E-02	4.9E-02	--	--	--	--	--	--	--	--	--	--	2.6E-02	4.9E-02
Hexachlorocyclohexane																					
Beta-BHC <sup>C</sup>	0	--	--	9.1E-02	1.7E-01	--	--	9.1E-02	1.7E-01	--	--	--	--	--	--	--	--	--	--	9.1E-02	1.7E-01
Hexachlorocyclohexane																					
Gamma-BHC <sup>C</sup> (Lindane)	0	9.5E-01	--	9.8E-01	1.8E+00	9.5E-01	--	9.8E-01	1.8E+00	--	--	--	--	--	--	--	--	9.5E-01	--	9.8E-01	1.8E+00
Hexachlorocyclopentadiene	0	--	--	4.0E+01	1.1E+03	--	--	4.0E+01	1.1E+03	--	--	--	--	--	--	--	--	--	--	4.0E+01	1.1E+03
Hexachloroethane <sup>C</sup>	0	--	--	1.4E+01	3.3E+01	--	--	1.4E+01	3.3E+01	--	--	--	--	--	--	--	--	--	--	1.4E+01	3.3E+01
Hydrogen Sulfide	0	--	2.0E+00	--	--	--	2.0E+00	--	--	--	--	--	--	--	--	--	--	--	2.0E+00	--	--
Indano (1,2,3-od) pyrene <sup>C</sup>	0	--	--	3.8E-02	1.8E-01	--	--	3.8E-02	1.8E-01	--	--	--	--	--	--	--	--	--	--	3.8E-02	1.8E-01
Iron	0	--	--	3.0E+02	--	--	--	3.0E+02	--	--	--	--	--	--	--	--	--	--	--	3.0E+02	--
Isophorone <sup>C</sup>	0	--	--	3.5E+02	9.6E+03	--	--	3.5E+02	9.6E+03	--	--	--	--	--	--	--	--	--	--	3.5E+02	9.6E+03
Kepona	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	--	--	--	--	--	--	--	--	0.0E+00	--	--
Lead	0	4.9E+01	5.6E+00	1.5E+01	--	4.9E+01	5.6E+00	1.5E+01	--	--	--	--	--	--	--	--	--	4.9E+01	5.6E+00	1.5E+01	--
Malathion	0	--	1.0E-01	--	--	--	1.0E-01	--	--	--	--	--	--	--	--	--	--	--	1.0E-01	--	--
Manganese	0	--	--	5.0E+01	--	--	--	5.0E+01	--	--	--	--	--	--	--	--	--	--	--	5.0E+01	--
Mercury	0	1.4E+00	7.7E-01	--	--	1.4E+00	7.7E-01	--	--	--	--	--	--	--	--	--	--	1.4E+00	7.7E-01	--	--
Methyl Bromide	0	--	--	4.7E+01	1.5E+03	--	--	4.7E+01	1.5E+03	--	--	--	--	--	--	--	--	--	--	4.7E+01	1.5E+03
Methylene Chloride <sup>C</sup>	0	--	--	4.6E+01	5.9E+03	--	--	4.6E+01	5.9E+03	--	--	--	--	--	--	--	--	--	--	4.6E+01	5.9E+03
Methoxychlor	0	--	3.0E-02	1.0E+02	--	--	3.0E-02	1.0E+02	--	--	--	--	--	--	--	--	--	--	3.0E-02	1.0E+02	--
Minox	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	--	--	--	--	--	--	--	--	0.0E+00	--	--
Nickel	0	1.0E+02	1.1E+01	6.1E+02	4.6E+03	1.0E+02	1.1E+01	6.1E+02	4.6E+03	--	--	--	--	--	--	--	--	1.0E+02	1.1E+01	6.1E+02	4.6E+03
Nitrate (as N)	0	--	--	1.0E+04	--	--	--	1.0E+04	--	--	--	--	--	--	--	--	--	--	--	1.0E+04	--
Nitrobenzene	0	--	--	1.7E+01	6.9E+02	--	--	1.7E+01	6.9E+02	--	--	--	--	--	--	--	--	--	--	1.7E+01	6.9E+02
N-Nitrosodimethylamine <sup>C</sup>	0	--	--	6.9E-03	3.0E+01	--	--	6.9E-03	3.0E+01	--	--	--	--	--	--	--	--	--	--	6.9E-03	3.0E+01
N-Nitrosodiphenylamine <sup>C</sup>	0	--	--	3.3E+01	6.0E+01	--	--	3.3E+01	6.0E+01	--	--	--	--	--	--	--	--	--	--	3.3E+01	6.0E+01
N-Nitrosodipropylamine <sup>C</sup>	0	--	--	5.0E-02	5.1E+00	--	--	5.0E-02	5.1E+00	--	--	--	--	--	--	--	--	--	--	5.0E-02	5.1E+00
Nonylphenol	0	2.8E+01	6.6E+00	--	--	2.8E+01	6.6E+00	--	--	--	--	--	--	--	--	--	--	2.8E+01	6.6E+00	--	--
Parathion	0	6.5E-02	1.3E-02	--	--	6.5E-02	1.3E-02	--	--	--	--	--	--	--	--	--	--	6.5E-02	1.3E-02	--	--
PCB Total <sup>C</sup>	0	--	1.4E-02	6.4E-04	6.4E-04	--	1.4E-02	6.4E-04	6.4E-04	--	--	--	--	--	--	--	--	--	1.4E-02	6.4E-04	6.4E-04
Pentachlorophenol <sup>C</sup>	0	7.7E-03	5.9E-03	2.7E+00	3.0E+01	7.7E-03	5.9E-03	2.7E+00	3.0E+01	--	--	--	--	--	--	--	--	7.7E-03	5.9E-03	2.7E+00	3.0E+01
Phenol	0	--	--	1.0E+04	8.6E+05	--	--	1.0E+04	8.6E+05	--	--	--	--	--	--	--	--	--	--	1.0E+04	8.6E+05
Pyrene	0	--	--	8.3E+02	4.0E+03	--	--	8.3E+02	4.0E+03	--	--	--	--	--	--	--	--	--	--	8.3E+02	4.0E+03
Radionuclides																					
Gross Alpha Activity (pCi/L)	0	--	--	1.5E+01	--	--	--	1.5E+01	--	--	--	--	--	--	--	--	--	--	--	1.5E+01	--
Beta and Photon Activity (mrem/yr)	0	--	--	4.0E+00	4.0E+00	--	--	4.0E+00	4.0E+00	--	--	--	--	--	--	--	--	--	--	4.0E+00	4.0E+00
Radium 226 + 228 (pCi/L)	0	--	--	5.0E+00	--	--	--	5.0E+00	--	--	--	--	--	--	--	--	--	--	--	5.0E+00	--
Uranium (ug/l)	0	--	--	3.0E+01	--	--	--	3.0E+01	--	--	--	--	--	--	--	--	--	--	--	3.0E+01	--

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	1.7E+02	4.2E+03	2.0E+01	5.0E+00	1.7E+02	4.2E+03	-	-	-	-	-	-	-	-	2.0E+01	5.0E+00	1.7E+02	4.2E+03
Silver	0	1.0E+00	-	-	-	1.0E+00	-	-	-	-	-	-	-	-	-	-	-	1.0E+00	-	-	-
Sulfate	0	-	-	2.5E+05	-	-	-	2.5E+05	-	-	-	-	-	-	-	-	-	-	-	2.5E+05	-
1,1,2,2-Tetrachloroethane <sup>C</sup>	0	-	-	1.7E+00	4.0E+01	-	-	1.7E+00	4.0E+01	-	-	-	-	-	-	-	-	-	-	1.7E+00	4.0E+01
Tetrachloroethylene <sup>C</sup>	0	-	-	6.9E+00	3.3E+01	-	-	6.9E+00	3.3E+01	-	-	-	-	-	-	-	-	-	-	6.9E+00	3.3E+01
Thallium	0	-	-	2.4E-01	4.7E-01	-	-	2.4E-01	4.7E-01	-	-	-	-	-	-	-	-	-	-	2.4E-01	4.7E-01
Toluene	0	-	-	5.1E+02	6.0E+03	-	-	5.1E+02	6.0E+03	-	-	-	-	-	-	-	-	-	-	5.1E+02	6.0E+03
Total dissolved solids	0	-	-	5.0E+05	-	-	-	5.0E+05	-	-	-	-	-	-	-	-	-	-	-	5.0E+05	-
Toxaphene <sup>C</sup>	0	7.3E-01	2.0E-04	2.8E-03	2.8E-03	7.3E-01	2.0E-04	2.8E-03	2.8E-03	-	-	-	-	-	-	-	-	7.3E-01	2.0E-04	2.8E-03	2.8E-03
Tributyltin	0	4.6E-01	7.2E-02	-	-	4.6E-01	7.2E-02	-	-	-	-	-	-	-	-	-	-	4.6E-01	7.2E-02	-	-
1,2,4-Trichlorobenzene	0	-	-	3.5E+01	7.0E+01	-	-	3.5E+01	7.0E+01	-	-	-	-	-	-	-	-	-	-	3.5E+01	7.0E+01
1,1,2-Trichloroethane <sup>C</sup>	0	-	-	5.9E+00	1.6E+02	-	-	5.9E+00	1.6E+02	-	-	-	-	-	-	-	-	-	-	5.9E+00	1.6E+02
Trichloroethylene <sup>C</sup>	0	-	-	2.5E+01	3.0E+02	-	-	2.5E+01	3.0E+02	-	-	-	-	-	-	-	-	-	-	2.5E+01	3.0E+02
2,4,6-Trichlorophenol <sup>C</sup>	0	-	-	1.4E+01	2.4E+01	-	-	1.4E+01	2.4E+01	-	-	-	-	-	-	-	-	-	-	1.4E+01	2.4E+01
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	-	-	5.0E+01	-	-	-	5.0E+01	-	-	-	-	-	-	-	-	-	-	-	5.0E+01	-
Vinyl Chloride <sup>C</sup>	0	-	-	2.5E-01	2.4E+01	-	-	2.5E-01	2.4E+01	-	-	-	-	-	-	-	-	-	-	2.5E-01	2.4E+01
Zinc	0	6.5E+01	6.6E+01	7.4E+03	2.6E+04	6.5E+01	6.6E+01	7.4E+03	2.6E+04	-	-	-	-	-	-	-	-	6.5E+01	6.6E+01	7.4E+03	2.6E+04

Notes:

- All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise.
- Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipalities.
- Metals measured as Dissolved, unless specified otherwise.
- "C" indicates a carcinogenic parameter.
- Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.  
Antidegradation WLAs are based upon a complete mix.  
Antideg. Baseline =  $(0.25(\text{WQC} - \text{background conc.}) + \text{background conc.})$  for acute and chronic;  
=  $(0.1(\text{WQC} - \text{background conc.}) + \text{background conc.})$  for human health.
- WLAs established at the following stream flows: 1Q10 for Acute, 3Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1); effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)	Note: do not use QL's lower than the minimum QL's provided in agency guidance.
Antimony	5.6E+00	
Arsenic	1.0E+01	
Barium	2.0E+03	
Cadmium	3.9E-01	
Chromium III	2.5E+01	
Chromium VI	6.4E+00	
Copper	2.8E+00	
Iron	3.0E+02	
Lead	3.4E+00	
Manganese	5.0E+01	
Mercury	4.6E-01	
Nickel	6.8E+00	
Selenium	3.0E+00	
Silver	4.2E-01	
Zinc	2.6E+01	

### 0.001 MGD DISCHARGE FLOW - STREAM MIX PER "Mix.exe"

Discharge Flow Used for WQS-WLA Calculations (MGD)					0.001		<u>Ammonia - Dry Season - Acute</u>				<u>Ammonia - Dry Season - Chronic</u>									
Stream Flows:			Total Mix Flows:			90th Percentile pH (SU)		7.500		90th Percentile Temp. (deg C)		25.000								
<u>Allocated to Mix (MGD)</u>			<u>Stream + Discharge (MGD)</u>			(7.204 - pH)		-0.296		90th Percentile pH (SU)		7.500								
<u>Dry Season</u>			<u>Wet Season</u>			<u>Dry Season</u>		<u>Wet Season</u>		MIN		1.450								
1Q10			0.000			0.001			0.001			MAX		25.000						
7Q10			0.000			N/A			N/A			(7.688 - pH)		0.188						
30Q10			0.000			0.001			0.001			(pH - 7.688)		-0.188						
30Q5			0.000			N/A			N/A			Early LS Present Criterion (mg N/L)		2.220						
Harm. Mean			0.000			N/A			N/A			Early LS Absent Criterion (mg N/L)		2.220						
Annual Avg.			0.000			N/A			N/A			Early Life Stages Present?		y						
												Effective Criterion (mg N/L)		2.220						
<u>Stream/Discharge Mix Values</u>							<u>Ammonia - Wet Season - Acute</u>							<u>Ammonia - Wet Season - Chronic</u>						
			<u>Dry Season</u>			<u>Wet Season</u>			90th Percentile pH (SU)		7.500		90th Percentile Temp. (deg C)		0.000					
1Q10 90th% Temp. Mix (deg C)			25.000			0.000			(7.204 - pH)		-0.296		90th Percentile pH (SU)		7.500					
30Q10 90th% Temp. Mix (deg C)			25.000			0.000			(pH - 7.204)		0.296		MIN		2.850					
1Q10 90th% pH Mix (SU)			7.500			7.500			Trout Present Criterion (mg N/L)		13.283		MAX		7.000					
30Q10 90th% pH Mix (SU)			7.500			7.500			Trout Absent Criterion (mg N/L)		19.890		(7.688 - pH)		0.188					
1Q10 10th% pH Mix (SU)			0.000			N/A			Trout Present?		y		(pH - 7.688)		-0.188					
7Q10 10th% pH Mix (SU)			0.000			N/A			Effective Criterion (mg N/L)		13.283		Early LS Present Criterion (mg N/L)		4.364					
													Early LS Absent Criterion (mg N/L)		7.086					
													Early Life Stages Present?		y					
													Effective Criterion (mg N/L)		4.364					
1Q10 Hardness (mg/L as CaCO3)			50.0			50.0														
7Q10 Hardness (mg/L as CaCO3)			50.0			50.0														

### 0.001 MGD DISCHARGE FLOW - COMPLETE STREAM MIX

Discharge Flow Used for WQS-WLA Calculations (MGD) 0.001					<u>Ammonia - Dry Season - Acute</u>		<u>Ammonia - Dry Season - Chronic</u>	
100% Stream Flows:		Total Mix Flows:			90th Percentile pH (SU)	7.500	90th Percentile Temp. (deg C)	25.000
<u>Allocated to Mix (MGD)</u>		<u>Stream + Discharge (MGD)</u>			(7.204 - pH)	-0.296	90th Percentile pH (SU)	7.500
	<u>Dry Season</u>	<u>Wet Season</u>	<u>Dry Season</u>	<u>Wet Season</u>	(pH - 7.204)	0.296	MIN	1.450
1Q10	0.000	0.000	0.001	0.001	Trout Present Criterion (mg N/L)	13.283	MAX	25.000
7Q10	0.000	N/A	0.001	N/A	Trout Absent Criterion (mg N/L)	19.890	(7.688 - pH)	0.188
30Q10	0.000	0.000	0.001	0.001	Trout Present?	y	(pH - 7.688)	-0.188
30Q5	0.000	N/A	0.001	N/A	Effective Criterion (mg N/L)	13.283	Early LS Present Criterion (mg N/L)	2.220
Harm. Mean	0.000	N/A	0.001	N/A			Early LS Absent Criterion (mg N/L)	2.220
Annual Avg.	0.000	N/A	0.001	N/A			Early Life Stages Present?	y
							Effective Criterion (mg N/L)	2.220
<u>Stream/Discharge Mix Values</u>					<u>Ammonia - Wet Season - Acute</u>		<u>Ammonia - Wet Season - Chronic</u>	
			<u>Dry Season</u>	<u>Wet Season</u>	90th Percentile pH (SU)	7.500	90th Percentile Temp. (deg C)	0.000
1Q10 90th% Temp. Mix (deg C)			25.000	0.000	(7.204 - pH)	-0.296	90th Percentile pH (SU)	7.500
30Q10 90th% Temp. Mix (deg C)			25.000	0.000	(pH - 7.204)	0.296	MIN	2.850
1Q10 90th% pH Mix (SU)			7.500	7.500	Trout Present Criterion (mg N/L)	13.283	MAX	7.000
30Q10 90th% pH Mix (SU)			7.500	7.500	Trout Absent Criterion (mg N/L)	19.890	(7.688 - pH)	0.188
1Q10 10th% pH Mix (SU)			0.000	N/A	Trout Present?	y	(pH - 7.688)	-0.188
7Q10 10th% pH Mix (SU)			0.000	N/A	Effective Criterion (mg N/L)	13.283	Early LS Present Criterion (mg N/L)	4.364
							Early LS Absent Criterion (mg N/L)	7.086
							Early Life Stages Present?	y
							Effective Criterion (mg N/L)	4.364
					</			



# FRESHWATER WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Kim STP (Summer April - October)

Permit No.: VA0090026

Receiving Stream: Thompson's Creek, UT

Version: OWP Guidance Memo 00-2011 (8/24/00)

## Stream Information

Mean Hardness (as CaCO<sub>3</sub>) = 50 mg/L  
 90% Temperature (Annual) = 25 deg C  
 90% Temperature (Wet season) = deg C  
 90% Maximum pH = 7.5 SU  
 10% Maximum pH = SU  
 Tier Designation (1 or 2) = 1  
 Public Water Supply (PWS) Y/N? = Y  
 Trout Present Y/N? = Y  
 Early Life Stages Present Y/N? = Y

## Stream Flows

1Q10 (Annual) = 0 MGD  
 7Q10 (Annual) = 0 MGD  
 3Q10 (Annual) = 0 MGD  
 1Q10 (Wet season) = 0 MGD  
 3Q10 (Wet season) = 0 MGD  
 3Q05 = 0 MGD  
 Harmonic Mean = 0 MGD

## Mixing Information

Annual - 1Q10 Mix = 100 %  
 - 7Q10 Mix = 100 %  
 - 3Q10 Mix = 100 %  
 Wet Season - 1Q10 Mix = 100 %  
 - 3Q10 Mix = 100 %

## Effluent Information

Mean Hardness (as CaCO<sub>3</sub>) = 50 mg/L  
 90% Temp (Annual) = 25 deg C  
 90% Temp (Wet season) = deg C  
 90% Maximum pH = 7.5 SU  
 10% Maximum pH = SU  
 Discharge Flow = 0.0009 MGD

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acephenanthrene	0	-	-	6.7E+02	9.9E+02	-	-	6.7E+02	9.9E+02	-	-	-	-	-	-	-	-	-	-	6.7E+02	9.9E+02
Acrolein	0	-	-	6.1E+00	9.3E+00	-	-	6.1E+00	9.3E+00	-	-	-	-	-	-	-	-	-	-	6.1E+00	9.3E+00
Acrylonitrile	0	-	-	5.1E-01	2.5E+00	-	-	5.1E-01	2.5E+00	-	-	-	-	-	-	-	-	-	-	5.1E-01	2.5E+00
Aldrin	0	3.0E+00	-	4.9E-04	5.0E-04	3.0E+00	-	4.9E-04	5.0E-04	-	-	-	-	-	-	-	-	3.0E+00	-	4.9E-04	5.0E-04
Ammonia-N (mg/l) (Yearly)	0	1.33E+01	2.22E+00	-	-	1.3E+01	2.2E+00	-	-	-	-	-	-	-	-	-	-	1.3E+01	2.2E+00	-	-
Ammonia-N (mg/l) (High Flow)	0	1.33E+01	4.36E+00	-	-	1.3E+01	4.4E+00	-	-	-	-	-	-	-	-	-	-	1.3E+01	4.4E+00	-	-
Anthracene	0	-	-	8.3E+03	4.0E+04	-	-	8.3E+03	4.0E+04	-	-	-	-	-	-	-	-	-	-	8.3E+03	4.0E+04
Antimony	0	-	-	5.6E+00	6.4E+02	-	-	5.6E+00	6.4E+02	-	-	-	-	-	-	-	-	-	-	5.6E+00	6.4E+02
Arsenic	0	3.4E+02	1.5E+02	1.0E+01	-	3.4E+02	1.5E+02	1.0E+01	-	-	-	-	-	-	-	-	-	3.4E+02	1.5E+02	1.0E+01	-
Barium	0	-	-	2.0E+03	-	-	-	2.0E+03	-	-	-	-	-	-	-	-	-	-	-	2.0E+03	-
Benzene	0	-	-	2.2E+01	5.1E+02	-	-	2.2E+01	5.1E+02	-	-	-	-	-	-	-	-	-	-	2.2E+01	5.1E+02
Benzidine	0	-	-	8.6E-04	2.0E-03	-	-	8.6E-04	2.0E-03	-	-	-	-	-	-	-	-	-	-	8.6E-04	2.0E-03
Benzo (a) anthracene	0	-	-	3.8E-02	1.8E-01	-	-	3.8E-02	1.8E-01	-	-	-	-	-	-	-	-	-	-	3.8E-02	1.8E-01
Benzo (b) fluoranthene	0	-	-	3.8E-02	1.8E-01	-	-	3.8E-02	1.8E-01	-	-	-	-	-	-	-	-	-	-	3.8E-02	1.8E-01
Benzo (k) fluoranthene	0	-	-	3.8E-02	1.8E-01	-	-	3.8E-02	1.8E-01	-	-	-	-	-	-	-	-	-	-	3.8E-02	1.8E-01
Benzo (a) pyrene	0	-	-	3.8E-02	1.8E-01	-	-	3.8E-02	1.8E-01	-	-	-	-	-	-	-	-	-	-	3.8E-02	1.8E-01
Bis(2-Chloroethyl) Ether	0	-	-	3.0E-01	5.3E+00	-	-	3.0E-01	5.3E+00	-	-	-	-	-	-	-	-	-	-	3.0E-01	5.3E+00
Bis(2-Chloroisopropyl) Ether	0	-	-	1.4E+03	6.5E+04	-	-	1.4E+03	6.5E+04	-	-	-	-	-	-	-	-	-	-	1.4E+03	6.5E+04
Bis(2-Ethylhexyl) Phthalate	0	-	-	1.2E+01	2.2E+01	-	-	1.2E+01	2.2E+01	-	-	-	-	-	-	-	-	-	-	1.2E+01	2.2E+01
Bromoform	0	-	-	4.3E+01	1.4E+03	-	-	4.3E+01	1.4E+03	-	-	-	-	-	-	-	-	-	-	4.3E+01	1.4E+03
Butylbenzylphthalate	0	-	-	1.5E+03	1.9E+03	-	-	1.5E+03	1.9E+03	-	-	-	-	-	-	-	-	-	-	1.5E+03	1.9E+03
Cadmium	0	1.8E+00	6.6E-01	5.0E+00	-	1.8E+00	6.6E-01	5.0E+00	-	-	-	-	-	-	-	-	-	1.8E+00	6.6E-01	5.0E+00	-
Carbon Tetrachloride	0	-	-	2.3E+00	1.6E+01	-	-	2.3E+00	1.6E+01	-	-	-	-	-	-	-	-	-	-	2.3E+00	1.6E+01
Chlordane	0	2.4E+00	4.3E-03	8.0E-03	8.1E-03	2.4E+00	4.3E-03	8.0E-03	8.1E-03	-	-	-	-	-	-	-	-	2.4E+00	4.3E-03	8.0E-03	8.1E-03
Chloride	0	8.6E+05	2.3E+05	2.5E+05	-	8.6E+05	2.3E+05	2.5E+05	-	-	-	-	-	-	-	-	-	8.6E+05	2.3E+05	2.5E+05	-
TRC	0	1.9E+01	1.1E+01	-	-	1.9E+01	1.1E+01	-	-	-	-	-	-	-	-	-	-	1.9E+01	1.1E+01	-	-
Chlorobenzene	0	-	-	1.3E+02	1.6E+03	-	-	1.3E+02	1.6E+03	-	-	-	-	-	-	-	-	-	-	1.3E+02	1.6E+03

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH <sup>1</sup>	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane <sup>C</sup>	0	-	-	4.0E+00	1.3E+02	-	-	4.0E+00	1.3E+02	-	-	-	-	-	-	-	-	-	-	4.0E+00	1.3E+02
Chloroform	0	-	-	3.4E+02	1.1E+04	-	-	3.4E+02	1.1E+04	-	-	-	-	-	-	-	-	-	-	3.4E+02	1.1E+04
2-Chlorophthalene	0	-	-	1.0E+03	1.6E+03	-	-	1.0E+03	1.6E+03	-	-	-	-	-	-	-	-	-	-	1.0E+03	1.6E+03
2-Chlorophenol	0	-	-	8.1E+01	1.5E+02	-	-	8.1E+01	1.5E+02	-	-	-	-	-	-	-	-	-	-	8.1E+01	1.5E+02
Chlorpyrifos	0	8.3E-02	4.1E-02	-	-	8.3E-02	4.1E-02	-	-	-	-	-	-	-	-	-	-	8.3E-02	4.1E-02	-	-
Chromium III	0	3.2E+02	4.2E+01	-	-	3.2E+02	4.2E+01	-	-	-	-	-	-	-	-	-	-	3.2E+02	4.2E+01	-	-
Chromium VI	0	1.6E+01	1.1E+01	-	-	1.6E+01	1.1E+01	-	-	-	-	-	-	-	-	-	-	1.6E+01	1.1E+01	-	-
Chromium, Total	0	-	-	1.0E+02	-	-	-	1.0E+02	-	-	-	-	-	-	-	-	-	-	-	1.0E+02	-
Chrysene <sup>C</sup>	0	-	-	3.8E-03	1.8E-02	-	-	3.8E-03	1.8E-02	-	-	-	-	-	-	-	-	-	-	3.8E-03	1.8E-02
Copper	0	7.0E+00	5.0E+00	1.3E+03	-	7.0E+00	5.0E+00	1.3E+03	-	-	-	-	-	-	-	-	-	7.0E+00	5.0E+00	1.3E+03	-
Cyanide, Free	0	2.2E+01	5.2E+00	1.4E+02	1.6E+04	2.2E+01	5.2E+00	1.4E+02	1.6E+04	-	-	-	-	-	-	-	-	2.2E+01	5.2E+00	1.4E+02	1.6E+04
DDD <sup>C</sup>	0	-	-	3.1E-03	3.1E-03	-	-	3.1E-03	3.1E-03	-	-	-	-	-	-	-	-	-	-	3.1E-03	3.1E-03
DDE <sup>C</sup>	0	-	-	2.2E-03	2.2E-03	-	-	2.2E-03	2.2E-03	-	-	-	-	-	-	-	-	-	-	2.2E-03	2.2E-03
DDT <sup>C</sup>	0	1.1E+00	1.0E-03	2.2E-03	2.2E-03	1.1E+00	1.0E-03	2.2E-03	2.2E-03	-	-	-	-	-	-	-	-	1.1E+00	1.0E-03	2.2E-03	2.2E-03
Demeton	0	-	1.0E-01	-	-	-	1.0E-01	-	-	-	-	-	-	-	-	-	-	-	1.0E-01	-	-
Diazinon	0	1.7E-01	1.7E-01	-	-	1.7E-01	1.7E-01	-	-	-	-	-	-	-	-	-	-	1.7E-01	1.7E-01	-	-
Dibenz(a,h)anthracene <sup>C</sup>	0	-	-	3.8E-02	1.8E-01	-	-	3.8E-02	1.8E-01	-	-	-	-	-	-	-	-	-	-	3.8E-02	1.8E-01
1,2-Dichlorobenzene	0	-	-	4.2E+02	1.3E+03	-	-	4.2E+02	1.3E+03	-	-	-	-	-	-	-	-	-	-	4.2E+02	1.3E+03
1,3-Dichlorobenzene	0	-	-	3.2E+02	9.6E+02	-	-	3.2E+02	9.6E+02	-	-	-	-	-	-	-	-	-	-	3.2E+02	9.6E+02
1,4-Dichlorobenzene	0	-	-	6.3E+01	1.9E+02	-	-	6.3E+01	1.9E+02	-	-	-	-	-	-	-	-	-	-	6.3E+01	1.9E+02
3,3-Dichlorobenzidine <sup>C</sup>	0	-	-	2.1E-01	2.8E-01	-	-	2.1E-01	2.8E-01	-	-	-	-	-	-	-	-	-	-	2.1E-01	2.8E-01
Dichlorobromomethane <sup>C</sup>	0	-	-	5.5E+00	1.7E+02	-	-	5.5E+00	1.7E+02	-	-	-	-	-	-	-	-	-	-	5.5E+00	1.7E+02
1,2-Dichloroethane <sup>C</sup>	0	-	-	3.8E+00	3.7E+02	-	-	3.8E+00	3.7E+02	-	-	-	-	-	-	-	-	-	-	3.8E+00	3.7E+02
1,1-Dichloroethylene	0	-	-	3.3E+02	7.1E+03	-	-	3.3E+02	7.1E+03	-	-	-	-	-	-	-	-	-	-	3.3E+02	7.1E+03
1,2-trans-dichloroethylene	0	-	-	1.4E+02	1.0E+04	-	-	1.4E+02	1.0E+04	-	-	-	-	-	-	-	-	-	-	1.4E+02	1.0E+04
2,4-Dichlorophenol	0	-	-	7.7E+01	2.9E+02	-	-	7.7E+01	2.9E+02	-	-	-	-	-	-	-	-	-	-	7.7E+01	2.9E+02
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	-	-	1.0E+02	-	-	-	1.0E+02	-	-	-	-	-	-	-	-	-	-	-	1.0E+02	-
1,2-Dichloropropane <sup>C</sup>	0	-	-	5.0E+00	1.5E+02	-	-	5.0E+00	1.5E+02	-	-	-	-	-	-	-	-	-	-	5.0E+00	1.5E+02
1,3-Dichloropropane <sup>C</sup>	0	-	-	3.4E+00	2.1E+02	-	-	3.4E+00	2.1E+02	-	-	-	-	-	-	-	-	-	-	3.4E+00	2.1E+02
Dieldrin <sup>C</sup>	0	2.4E-01	5.6E-02	5.2E-04	5.4E-04	2.4E-01	5.6E-02	5.2E-04	5.4E-04	-	-	-	-	-	-	-	-	2.4E-01	5.6E-02	5.2E-04	5.4E-04
Diethyl Phthalate	0	-	-	1.7E+04	4.4E+04	-	-	1.7E+04	4.4E+04	-	-	-	-	-	-	-	-	-	-	1.7E+04	4.4E+04
2,4-Dimethylphenol	0	-	-	3.8E+02	8.5E+02	-	-	3.8E+02	8.5E+02	-	-	-	-	-	-	-	-	-	-	3.8E+02	8.5E+02
Dimethyl Phthalate	0	-	-	2.7E+05	1.1E+06	-	-	2.7E+05	1.1E+06	-	-	-	-	-	-	-	-	-	-	2.7E+05	1.1E+06
Di-n-Butyl Phthalate	0	-	-	2.0E+03	4.5E+03	-	-	2.0E+03	4.5E+03	-	-	-	-	-	-	-	-	-	-	2.0E+03	4.5E+03
2,4-Dinitrophenol	0	-	-	6.9E+01	5.3E+03	-	-	6.9E+01	5.3E+03	-	-	-	-	-	-	-	-	-	-	6.9E+01	5.3E+03
2-Methyl-4,6-Dinitrophenol	0	-	-	1.3E+01	2.8E+02	-	-	1.3E+01	2.8E+02	-	-	-	-	-	-	-	-	-	-	1.3E+01	2.8E+02
2,4-Dinitrotoluene <sup>C</sup>	0	-	-	1.1E+00	3.4E+01	-	-	1.1E+00	3.4E+01	-	-	-	-	-	-	-	-	-	-	1.1E+00	3.4E+01
Dioxin 2,3,7,8- tetrachlorodibenzo-p-dioxin	0	-	-	5.0E-08	5.1E-08	-	-	5.0E-08	5.1E-08	-	-	-	-	-	-	-	-	-	-	5.0E-08	5.1E-08
1,2-Diphenylhydrazine <sup>C</sup>	0	-	-	3.6E-01	2.0E+00	-	-	3.6E-01	2.0E+00	-	-	-	-	-	-	-	-	-	-	3.6E-01	2.0E+00
Alpha-Endosulfan	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	2.2E-01	5.6E-02	6.2E+01	8.9E+01	-	-	-	-	-	-	-	-	2.2E-01	5.6E-02	6.2E+01	8.9E+01
Beta-Endosulfan	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	2.2E-01	5.6E-02	6.2E+01	8.9E+01	-	-	-	-	-	-	-	-	2.2E-01	5.6E-02	6.2E+01	8.9E+01
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	-	-	2.2E-01	5.6E-02	-	-	-	-	-	-	-	-	-	-	2.2E-01	5.6E-02	-	-
Endosulfan Sulfate	0	-	-	6.2E+01	8.9E+01	-	-	6.2E+01	8.9E+01	-	-	-	-	-	-	-	-	-	-	6.2E+01	8.9E+01
Endrin	0	8.6E-02	3.6E-02	5.9E-02	6.0E-02	8.6E-02	3.6E-02	5.9E-02	6.0E-02	-	-	-	-	-	-	-	-	8.6E-02	3.6E-02	5.9E-02	6.0E-02
Endrin Aldehyde	0	-	-	2.9E-01	3.0E-01	-	-	2.9E-01	3.0E-01	-	-	-	-	-	-	-	-	-	-	2.9E-01	3.0E-01

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	-	-	5.3E+02	2.1E+03	-	-	5.3E+02	2.1E+03	-	-	-	-	-	-	-	-	-	-	5.3E+02	2.1E+03
Fluoranthene	0	-	-	1.3E+02	1.4E+02	-	-	1.3E+02	1.4E+02	-	-	-	-	-	-	-	-	-	-	1.3E+02	1.4E+02
Fluorine	0	-	-	1.1E+03	5.3E+03	-	-	1.1E+03	5.3E+03	-	-	-	-	-	-	-	-	-	-	1.1E+03	5.3E+03
Foaming Agents	0	-	-	5.0E+02	-	-	-	5.0E+02	-	-	-	-	-	-	-	-	-	-	-	5.0E+02	-
Guthion	0	-	1.0E-02	-	-	-	1.0E-02	-	-	-	-	-	-	-	-	-	-	-	1.0E-02	-	-
Heptachlor <sup>C</sup>	0	5.2E-01	3.8E-03	7.9E-04	7.9E-04	5.2E-01	3.8E-03	7.9E-04	7.9E-04	-	-	-	-	-	-	-	-	5.2E-01	3.8E-03	7.9E-04	7.9E-04
Heptachlor Epoxide <sup>C</sup>	0	5.2E-01	3.8E-03	3.9E-04	3.9E-04	5.2E-01	3.8E-03	3.9E-04	3.9E-04	-	-	-	-	-	-	-	-	5.2E-01	3.8E-03	3.9E-04	3.9E-04
Hexachlorobenzene <sup>C</sup>	0	-	-	2.8E-03	2.9E-03	-	-	2.8E-03	2.9E-03	-	-	-	-	-	-	-	-	-	-	2.8E-03	2.9E-03
Hexachlorobutadiene <sup>C</sup>	0	-	-	4.4E+00	1.8E+02	-	-	4.4E+00	1.8E+02	-	-	-	-	-	-	-	-	-	-	4.4E+00	1.8E+02
Hexachlorocyclohexane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alpha-BHC <sup>C</sup>	0	-	-	2.6E-02	4.9E-02	-	-	2.6E-02	4.9E-02	-	-	-	-	-	-	-	-	-	-	2.6E-02	4.9E-02
Hexachlorocyclohexane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beta-BHC <sup>C</sup>	0	-	-	9.1E-02	1.7E-01	-	-	9.1E-02	1.7E-01	-	-	-	-	-	-	-	-	-	-	9.1E-02	1.7E-01
Hexachlorocyclohexane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gamma-BHC <sup>C</sup> (Lindane)	0	9.5E-01	-	9.8E-01	1.8E+00	9.5E-01	-	9.8E-01	1.8E+00	-	-	-	-	-	-	-	-	9.5E-01	-	9.8E-01	1.8E+00
Hexachlorocyclopentadiene	0	-	-	4.0E+01	1.1E+03	-	-	4.0E+01	1.1E+03	-	-	-	-	-	-	-	-	-	-	4.0E+01	1.1E+03
Hexachloroethane <sup>C</sup>	0	-	-	1.4E+01	3.3E+01	-	-	1.4E+01	3.3E+01	-	-	-	-	-	-	-	-	-	-	1.4E+01	3.3E+01
Hydrogen Sulfide	0	-	2.0E+00	-	-	-	2.0E+00	-	-	-	-	-	-	-	-	-	-	-	2.0E+00	-	-
Indeno (1,2,3-cd) pyrene <sup>C</sup>	0	-	-	3.8E-02	1.8E-01	-	-	3.8E-02	1.8E-01	-	-	-	-	-	-	-	-	-	-	3.8E-02	1.8E-01
Iron	0	-	-	3.0E+02	-	-	-	3.0E+02	-	-	-	-	-	-	-	-	-	-	-	3.0E+02	-
Isophorone <sup>C</sup>	0	-	-	3.5E+02	9.6E+03	-	-	3.5E+02	9.6E+03	-	-	-	-	-	-	-	-	-	-	3.5E+02	9.6E+03
Kepone	0	-	0.0E+00	-	-	-	0.0E+00	-	-	-	-	-	-	-	-	-	-	-	0.0E+00	-	-
Lead	0	4.9E+01	5.6E+00	1.5E+01	-	4.9E+01	5.6E+00	1.5E+01	-	-	-	-	-	-	-	-	-	4.9E+01	5.6E+00	1.5E+01	-
Malathion	0	-	1.0E-01	-	-	-	1.0E-01	-	-	-	-	-	-	-	-	-	-	-	1.0E-01	-	-
Manganese	0	-	-	5.0E+01	-	-	-	5.0E+01	-	-	-	-	-	-	-	-	-	-	-	5.0E+01	-
Mercury	0	1.4E+00	7.7E-01	-	-	1.4E+00	7.7E-01	-	-	-	-	-	-	-	-	-	-	1.4E+00	7.7E-01	-	-
Methyl Bromide	0	-	-	4.7E+01	1.5E+03	-	-	4.7E+01	1.5E+03	-	-	-	-	-	-	-	-	-	-	4.7E+01	1.5E+03
Methylene Chloride <sup>C</sup>	0	-	-	4.6E+01	5.9E+03	-	-	4.6E+01	5.9E+03	-	-	-	-	-	-	-	-	-	-	4.6E+01	5.9E+03
Methoxychlor	0	-	3.0E-02	1.0E+02	-	-	3.0E-02	1.0E+02	-	-	-	-	-	-	-	-	-	-	3.0E-02	1.0E+02	-
Mirex	0	-	0.0E+00	-	-	-	0.0E+00	-	-	-	-	-	-	-	-	-	-	-	0.0E+00	-	-
Nickel	0	1.0E+02	1.1E+01	6.1E+02	4.6E+03	1.0E+02	1.1E+01	6.1E+02	4.6E+03	-	-	-	-	-	-	-	-	1.0E+02	1.1E+01	6.1E+02	4.6E+03
Nitrate (as N)	0	-	-	1.0E+04	-	-	-	1.0E+04	-	-	-	-	-	-	-	-	-	-	-	1.0E+04	-
Nitrobenzene	0	-	-	1.7E+01	6.9E+02	-	-	1.7E+01	6.9E+02	-	-	-	-	-	-	-	-	-	-	1.7E+01	6.9E+02
N-Nitrosodimethylamin <sup>C</sup>	0	-	-	6.9E-03	3.0E+01	-	-	6.9E-03	3.0E+01	-	-	-	-	-	-	-	-	-	-	6.9E-03	3.0E+01
N-Nitrosodiphenylamin <sup>C</sup>	0	-	-	3.3E+01	6.0E+01	-	-	3.3E+01	6.0E+01	-	-	-	-	-	-	-	-	-	-	3.3E+01	6.0E+01
N-Nitrosodi-n-propylamin <sup>C</sup>	0	-	-	5.0E-02	5.1E+00	-	-	5.0E-02	5.1E+00	-	-	-	-	-	-	-	-	-	-	5.0E-02	5.1E+00
Nonylphenol	0	2.8E+01	6.6E+00	-	-	2.8E+01	6.6E+00	-	-	-	-	-	-	-	-	-	-	2.8E+01	6.6E+00	-	-
Parathion	0	6.5E-02	1.3E-02	-	-	6.5E-02	1.3E-02	-	-	-	-	-	-	-	-	-	-	6.5E-02	1.3E-02	-	-
PCB Total <sup>C</sup>	0	-	1.4E-02	6.4E-04	6.4E-04	-	1.4E-02	6.4E-04	6.4E-04	-	-	-	-	-	-	-	-	-	1.4E-02	6.4E-04	6.4E-04
Pentachlorophenol <sup>C</sup>	0	7.7E-03	5.9E-03	2.7E+00	3.0E+01	7.7E-03	5.9E-03	2.7E+00	3.0E+01	-	-	-	-	-	-	-	-	7.7E-03	5.9E-03	2.7E+00	3.0E+01
Phenol	0	-	-	1.0E+04	8.6E+05	-	-	1.0E+04	8.6E+05	-	-	-	-	-	-	-	-	-	-	1.0E+04	8.6E+05
Pyrene	0	-	-	8.3E+02	4.0E+03	-	-	8.3E+02	4.0E+03	-	-	-	-	-	-	-	-	-	-	8.3E+02	4.0E+03
Radionuclides	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Alpha Activity (pCi/L)	0	-	-	1.5E+01	-	-	-	1.5E+01	-	-	-	-	-	-	-	-	-	-	-	1.5E+01	-
Beta and Photon Activity (mrem/yr)	0	-	-	4.0E+00	4.0E+00	-	-	4.0E+00	4.0E+00	-	-	-	-	-	-	-	-	-	-	4.0E+00	4.0E+00
Radium 226 + 228 (pCi/L)	0	-	-	5.0E+00	-	-	-	5.0E+00	-	-	-	-	-	-	-	-	-	-	-	5.0E+00	-
Uranium (ug/l)	0	-	-	3.0E+01	-	-	-	3.0E+01	-	-	-	-	-	-	-	-	-	-	-	3.0E+01	-

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	1.7E+02	4.2E+03	2.0E+01	5.0E+00	1.7E+02	4.2E+03	-	-	-	-	-	-	-	-	2.0E+01	5.0E+00	1.7E+02	4.2E+03
Silver	0	1.0E+00	-	-	-	1.0E+00	-	-	-	-	-	-	-	-	-	-	-	1.0E+00	-	-	-
Sulfate	0	-	-	2.5E+05	-	-	-	2.5E+05	-	-	-	-	-	-	-	-	-	-	-	2.5E+05	-
1,1,2,2-Tetrachloroethane <sup>C</sup>	0	-	-	1.7E+00	4.0E+01	-	-	1.7E+00	4.0E+01	-	-	-	-	-	-	-	-	-	-	1.7E+00	4.0E+01
Tetrachloroethylene <sup>C</sup>	0	-	-	6.9E+00	3.3E+01	-	-	6.9E+00	3.3E+01	-	-	-	-	-	-	-	-	-	-	6.9E+00	3.3E+01
Thallium	0	-	-	2.4E-01	4.7E-01	-	-	2.4E-01	4.7E-01	-	-	-	-	-	-	-	-	-	-	2.4E-01	4.7E-01
Toluene	0	-	-	5.1E+02	6.0E+03	-	-	5.1E+02	6.0E+03	-	-	-	-	-	-	-	-	-	-	5.1E+02	6.0E+03
Total dissolved solids	0	-	-	5.0E+05	-	-	-	5.0E+05	-	-	-	-	-	-	-	-	-	-	-	5.0E+05	-
Toxaphene <sup>C</sup>	0	7.3E-01	2.0E-04	2.8E-03	2.8E-03	7.3E-01	2.0E-04	2.8E-03	2.8E-03	-	-	-	-	-	-	-	-	7.3E-01	2.0E-04	2.8E-03	2.8E-03
Tributyltin	0	4.6E-01	7.2E-02	-	-	4.6E-01	7.2E-02	-	-	-	-	-	-	-	-	-	-	4.6E-01	7.2E-02	-	-
1,2,4-Trichlorobenzene	0	-	-	3.5E+01	7.0E+01	-	-	3.5E+01	7.0E+01	-	-	-	-	-	-	-	-	-	-	3.5E+01	7.0E+01
1,1,2-Trichloroethane <sup>C</sup>	0	-	-	5.9E+00	1.6E+02	-	-	5.9E+00	1.6E+02	-	-	-	-	-	-	-	-	-	-	5.9E+00	1.6E+02
Trichloroethylene <sup>C</sup>	0	-	-	2.5E+01	3.0E+02	-	-	2.5E+01	3.0E+02	-	-	-	-	-	-	-	-	-	-	2.5E+01	3.0E+02
2,4,6-Trichlorophenol <sup>C</sup>	0	-	-	1.4E+01	2.4E+01	-	-	1.4E+01	2.4E+01	-	-	-	-	-	-	-	-	-	-	1.4E+01	2.4E+01
2-(2,4,5-Trichlorophenoxy)propionic acid (Silvex)	0	-	-	5.0E+01	-	-	-	5.0E+01	-	-	-	-	-	-	-	-	-	-	-	5.0E+01	-
Vinyl Chloride <sup>C</sup>	0	-	-	2.5E-01	2.4E+01	-	-	2.5E-01	2.4E+01	-	-	-	-	-	-	-	-	-	-	2.5E-01	2.4E+01
Zinc	0	6.5E+01	6.6E+01	7.4E+03	2.6E+04	6.5E+01	6.6E+01	7.4E+03	2.6E+04	-	-	-	-	-	-	-	-	6.5E+01	6.6E+01	7.4E+03	2.6E+04

#### Notes:

- All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise.
- Discharge flow is highest monthly average or Form 2C maximum for industries and design flow for Municipalities.
- Metals measured as Dissolved, unless specified otherwise.
- "C" indicates a carcinogenic parameter.
- Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.  
Antidegradation WLAs are based upon a complete mix.  
Antideg. Baseline =  $(0.25(WQC - \text{background conc.}) + \text{background conc.})$  for acute and chronic  
=  $(0.1(WQC - \text{background conc.}) + \text{background conc.})$  for human health
- WLAs established at the following stream flows: 10Q10 for Acute, 30Q10 for Chronic Annamorta, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)	Note: do not use OL's lower than the minimum OL's provided in agency guidance.
Antimony	5.6E+00	
Arsenic	1.0E+01	
Barium	2.0E+03	
Cadmium	3.9E-01	
Chromium III	2.5E+01	
Chromium VI	6.4E+00	
Copper	2.8E+00	
Iron	3.0E+02	
Lead	3.4E+00	
Manganese	5.0E+01	
Mercury	4.6E-01	
Nickel	6.8E+00	
Selenium	3.0E+00	
Silver	4.2E-01	
Zinc	2.6E+01	

### 0.001 MGD DISCHARGE FLOW - STREAM MIX PER "Mix.exe"

Discharge Flow Used for WQS-WLA Calculations (MGD) 0.001					<b>Ammonia - Dry Season - Acute</b>		<b>Ammonia - Dry Season - Chronic</b>	
<b>Stream Flows</b>		<b>Total Mix Flows</b>			90th Percentile pH (SU)	7.500	90th Percentile Temp. (deg C)	25.000
<b>Allocated to Mix (MGD)</b>		<b>Stream + Discharge (MGD)</b>			(7.204 - pH)	-0.296	90th Percentile pH (SU)	7.500
	<b>Dry Season</b>	<b>Wet Season</b>	<b>Dry Season</b>	<b>Wet Season</b>	(pH - 7.204)	0.296	MIN	1.450
1Q10	0.000	0.000	0.001	0.001	Trout Present Criterion (mg N/L)	13.283	MAX	25.000
7Q10	0.000	N/A	0.001	N/A	Trout Absent Criterion (mg N/L)	19.890	(7.688 - pH)	0.188
30Q10	0.000	0.000	0.001	0.001	Trout Present?	y	(pH - 7.688)	-0.188
30Q5	0.000	N/A	0.001	N/A	Effective Criterion (mg N/L)	13.283	Early LS Present Criterion (mg N)	2.220
Harm. Mean	0.000	N/A	0.001	N/A			Early LS Absent Criterion (mg N)	2.220
Annual Avg.	0.000	N/A	0.001	N/A			Early Life Stages Present?	y
							Effective Criterion (mg N/L)	2.220
<b>Stream/Discharge Mix Values</b>					<b>Ammonia - Wet Season - Acute</b>		<b>Ammonia - Wet Season - Chronic</b>	
			<b>Dry Season</b>	<b>Wet Season</b>	90th Percentile pH (SU)	7.500	90th Percentile Temp. (deg C)	0.000
1Q10 90th% Temp. Mix (deg C)			25.000	0.000	(7.204 - pH)	-0.296	90th Percentile pH (SU)	7.500
30Q10 90th% Temp. Mix (deg C)			25.000	0.000	(pH - 7.204)	0.296	MIN	2.850
1Q10 90th% pH Mix (SU)			7.500	7.500	Trout Present Criterion (mg N/L)	13.283	MAX	7.000
30Q10 90th% pH Mix (SU)			7.500	7.500	Trout Absent Criterion (mg N/L)	19.890	(7.688 - pH)	0.188
1Q10 10th% pH Mix (SU)			0.000	N/A	Trout Present?	y	(pH - 7.688)	-0.188
7Q10 10th% pH Mix (SU)			0.000	N/A	Effective Criterion (mg N/L)	13.283	Early LS Present Criterion (mg N)	4.364
			<b>Calculated</b>	<b>Formula Inputs</b>			Early LS Absent Criterion (mg N)	7.086
1Q10 Hardness (mg/L as CaCO3)			50.0	50.0			Early Life Stages Present?	y
7Q10 Hardness (mg/L as CaCO3)			50.0	50.0			Effective Criterion (mg N/L)	4.364

### 0.001 MGD DISCHARGE FLOW - COMPLETE STREAM MIX

Discharge Flow Used for WQS-WLA Calculations (MGD) 0.001					<b>Ammonia - Dry Season - Acute</b>		<b>Ammonia - Dry Season - Chronic</b>	
<b>100% Stream Flows</b>		<b>Total Mix Flows</b>			90th Percentile pH (SU)	7.500	90th Percentile Temp. (deg C)	25.000
<b>Allocated to Mix (MGD)</b>		<b>Stream + Discharge (MGD)</b>			(7.204 - pH)	-0.296	90th Percentile pH (SU)	7.500
	<b>Dry Season</b>	<b>Wet Season</b>	<b>Dry Season</b>	<b>Wet Season</b>	(pH - 7.204)	0.296	MIN	1.450
1Q10	0.000	0.000	0.001	0.001	Trout Present Criterion (mg N/L)	13.283	MAX	25.000
7Q10	0.000	N/A	0.001	N/A	Trout Absent Criterion (mg N/L)	19.890	(7.688 - pH)	0.188
30Q10	0.000	0.000	0.001	0.001	Trout Present?	y	(pH - 7.688)	-0.188
30Q5	0.000	N/A	0.001	N/A	Effective Criterion (mg N/L)	13.283	Early LS Present Criterion (mg N)	2.220
Harm. Mean	0.000	N/A	0.001	N/A			Early LS Absent Criterion (mg N)	2.220
Annual Avg.	0.000	N/A	0.001	N/A			Early Life Stages Present?	y
							Effective Criterion (mg N/L)	2.220
<b>Stream/Discharge Mix Values</b>					<b>Ammonia - Wet Season - Acute</b>		<b>Ammonia - Wet Season - Chronic</b>	
			<b>Dry Season</b>	<b>Wet Season</b>	90th Percentile pH (SU)	7.500	90th Percentile Temp. (deg C)	0.000
1Q10 90th% Temp. Mix (deg C)			25.000	0.000	(7.204 - pH)	-0.296	90th Percentile pH (SU)	7.500
30Q10 90th% Temp. Mix (deg C)			25.000	0.000	(pH - 7.204)	0.296	MIN	2.850
1Q10 90th% pH Mix (SU)			7.500	7.500	Trout Present Criterion (mg N/L)	13.283	MAX	7.000
30Q10 90th% pH Mix (SU)			7.500	7.500	Trout Absent Criterion (mg N/L)	19.890	(7.688 - pH)	0.188
1Q10 10th% pH Mix (SU)			0.000	N/A	Trout Present?	y	(pH - 7.688)	-0.188
7Q10 10th% pH Mix (SU)			0.000	N/A	Effective Criterion (mg N/L)	13.283	Early LS Present Criterion (mg N)	4.364
			<b>Calculated</b>	<b>Formula Inputs</b>			Early LS Absent Criterion (mg N)	7.086
1Q10 Hardness (mg/L as CaCO3) =			50.000	50.000			Early Life Stages Present?	y
7Q10 Hardness (mg/L as CaCO3) =			50.000	50.000			Effective Criterion (mg N/L)	4.364



# Define Point of Interest

38,40,11.9 -77,12,31.8

is the Search Point

## Search Point

- ☒ Change to "clicked" map point  
☐ Fixed at 38,40,11.9 - 77,12,31.8

## Show Position Rings

- ☒ Yes ☐ No

1 mile and 1/4 mile at the Search Point

## Show Search Area

- ☒ Yes ☐ No

2 miles

Search Point is at map center

## Base Map Choices

Topography

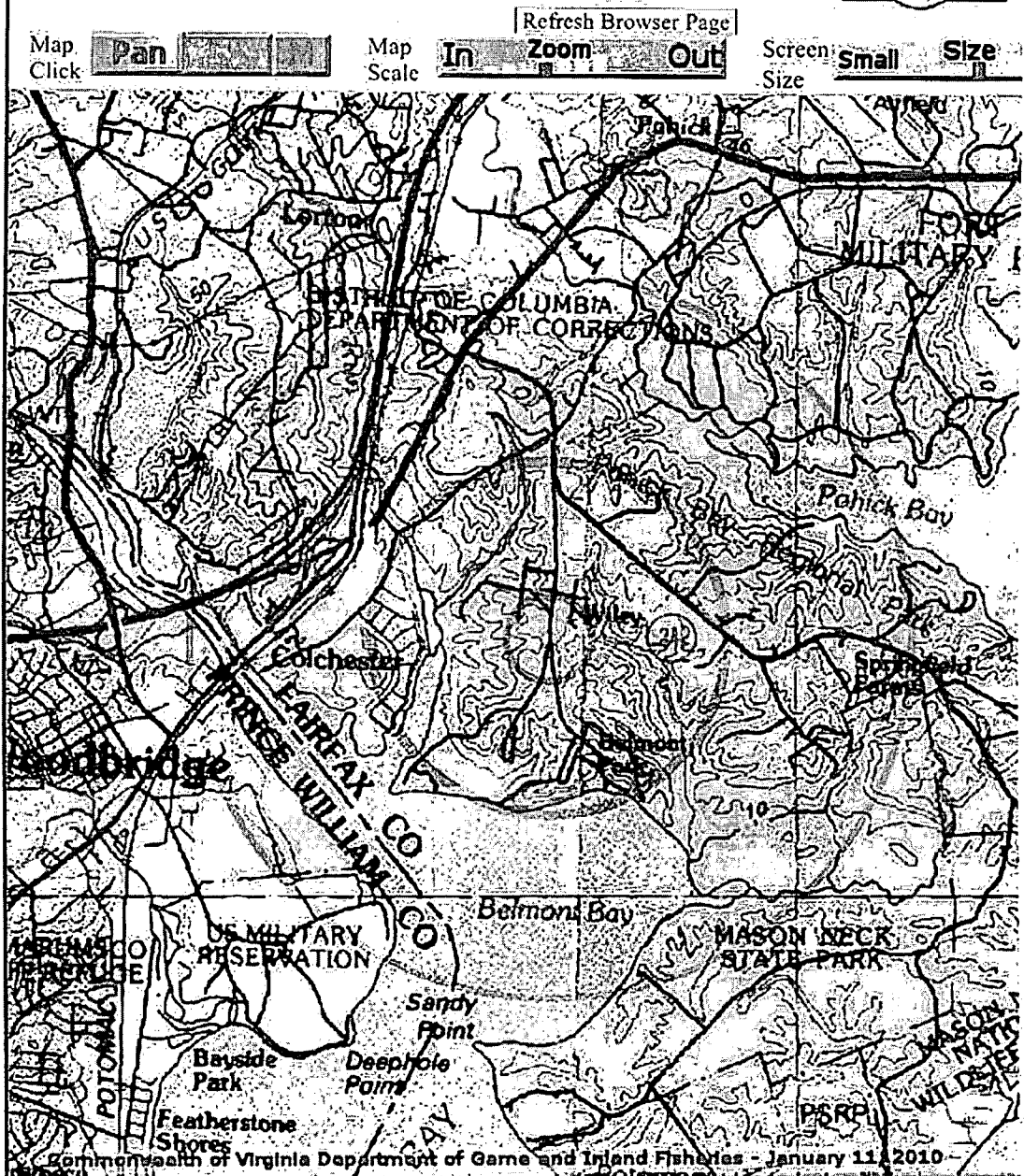
## Map Overlay Choices

Current List: Position, Search

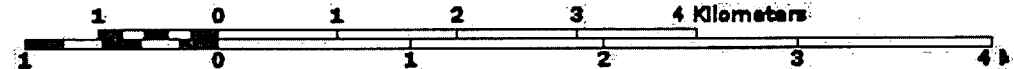
## Map Overlay Legend

**Position Rings**  
1 mile and 1.4 mile at the Search Point

**2 mile radius Search Area**



N



Point of Search 38,40,11.9 -77,12,31.8

Map Location 38,40,11.9 -77,12,31.8

Attachment 5

Select Coordinate System: ☒ Degrees, Minutes, Seconds Latitude - Longitude

☐ Decimal Degrees Latitude - Longitude

☐ Meters UTM NAD83 East North Zone

☐ Meters UTM NAD27 East North Zone

Base Map source: USGS 1:100,000 topographic maps (see [terraserver-usa.com](http://terraserver-usa.com) for details)

Map projection is UTM Zone 18 NAD 1983 with left 303049 and top 4287284. Pixel size is 16 meters. Coordinates displayed are Degrees, Minutes, Seconds North and West. Map is currently displayed as 60 columns by 600 rows for a total of 360000 pixels. The map display represents 9600 meters east to west, 9600 meters north to south for a total of 92.1 square kilometers. The map display represents 31501 feet east to west by 31501 feet north to south for a total of 35.5 square miles.

Black and white aerial photography acquired near 1990 and topographic maps are from the United States Department of the Interior, United States Geological Survey.

Shaded topographic maps are from TOPO! ©2006 National Geographic

<http://www.nationalgeographic.com/topo>

Color aerial photography acquired 2002 is from Virginia Base Mapping Program, Virginia Geographic Information Network

All other map products are from the Commonwealth of Virginia Department of Game and Inland Fisheries

map assembled 2010-01-11 11:52:17 (qa/qc July 27, 2009 10:09 - tn=274027 dist=32181)

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# Virginia Department of Game and Inland Fisheries

1/11/2010 11:50:02 AM

## Fish and Wildlife Information Service

VaFWIS Initial Project Assessment Report Compiled on  
1/11/2010, 11:50:02 AM

[Help](#)

Known or likely to occur within a 2 mile radius of 38,40,12.0

77,12,31.9

in 059 Fairfax County, 153 Prince William County, VA

619 Known or Likely Species ordered by Status Concern for Conservation  
(displaying first 43) (43 species with Status\* or Tier I\*\*)

BOVA Code	Status*	Tier**	Common Name	Scientific Name	Confirmed	Database(s)
060006	SE	II	Floater, brook	Alasmodontia varicosa		BOVA
030062	ST	I	Turtle, wood	Glyptemys insculpta		BOVA
040096	ST	I	Falcon, peregrine	Falco peregrinus	Yes	CBC
040129	ST	I	Sandpiper, upland	Bartramia longicauda		BOVA
040293	ST	I	Shrike, loggerhead	Lanius ludovicianus	Yes	CBC, BOVA
040379	ST	I	Sparrow, Henslow's	Ammodramus henslowii		BOVA
100155	FSST	I	Skipper, Appalachian grizzled	Pyrgus wyandot		BOVA
040093	FSST	II	Eagle, bald	Haliaeetus leucocephalus	Yes	Collections, BBA, CBC, BOVA
040292	ST		Shrike, migrant loggerhead	Lanius ludovicianus migrans		BOVA
100248	FS	I	Fritillary, regal	Speyeria idalia idalia		BOVA
100154	FS	II	Butterfly, Persius duskywing	Erynnis persius persius		BOVA
060029	FSSS	III	Lance, yellow	Elliptio lanceolata		BOVA
040372	SS	I	Crossbill, red	Loxia curvirostra	Yes	CBC, BOVA
040306	SS	I	Warbler, golden-winged	Vermivora chrysoptera		BOVA
010032	SS	II	Sturgeon, Atlantic	Acipenser oxyrinchus		BOVA
				Egretta		



040029	SS	II	<u>Heron, little blue</u>	caerulea caerulea		BOVA
040213	SS	II	<u>Owl, northern saw-whet</u>	Aegolius acadicus		BOVA
040304	SS	II	<u>Warbler, Swainson's</u>	Limnothlypis swainsonii		BOVA
040266	SS	II	<u>Wren, winter</u>	Troglodytes troglodytes	Yes	CBC,BOVA
030063	CC	III	<u>Turtle, spotted</u>	Clemmys guttata	Yes	Collections,BOVA
040094	SS	III	<u>Harrier, northern</u>	Circus cyaneus	Yes	CBC,BOVA
040036	SS	III	<u>Night-heron, yellow-crowned</u>	Nyctanassa violacea violacea	Yes	BBA,BOVA
040204	SS	III	<u>Owl, barn</u>	Tyto alba pratincola	Yes	CBC,BOVA
040270	SS	III	<u>Wren, sedge</u>	Cistothorus platensis	Yes	CBC,BOVA
060071	SS	III	<u>Lampmussel, yellow</u>	Lampsilis cariosa		BOVA
030012	CC	IV	<u>Rattlesnake, timber</u>	Crotalus horridus		BOVA
040264	SS	IV	<u>Creeper, brown</u>	Certhia americana	Yes	BBA,CBC,BOVA
040180	SS	IV	<u>Tern, Forster's</u>	Sterna forsteri		BOVA
040364	SS		<u>Dickcissel</u>	Spiza americana		BOVA
040032	SS		<u>Egret, great</u>	Ardea alba egretta	Yes	BBA,CBC,BOVA
040366	SS		<u>Finch, purple</u>	Carpodacus purpureus	Yes	CBC,BOVA
040285	SS		<u>Kinglet, golden-crowned</u>	Regulus satrapa	Yes	CBC,BOVA
040112	SS		<u>Moorhen, common</u>	Gallinula chloropus cachinnans		BOVA
040262	SS		<u>Nuthatch, red-breasted</u>	Sitta canadensis	Yes	CBC,BOVA
040210	SS		<u>Owl, long-eared</u>	Asio otus		BOVA
040189	SS		<u>Tern, Caspian</u>	Sterna caspia		BOVA
040278	SS		<u>Thrush, hermit</u>	Catharus guttatus	Yes	CBC,BOVA
040314	SS		<u>Warbler, magnolia</u>	Dendroica magnolia		BOVA

040335	SS		<u>Warbler,</u> <u>mourning</u>	<u>Oporornis</u> <u>philadelphia</u>	<u>Yes</u>	Collections,BOVA
050045	SS		<u>Otter,</u> <u>northern river</u>	<u>Lontra</u> <u>canadensis</u> <u>lataxina</u>		BOVA
060076	SS		<u>Lampmussel,</u> <u>eastern</u>	<u>Lampsilis</u> <u>radiata radiata</u>		BOVA
040225		I	<u>Sapsucker,</u> <u>yellow-</u> <u>bellied</u>	<u>Sphyrapicus</u> <u>varius</u>	<u>Yes</u>	CBC,BOVA
040319		I	<u>Warbler,</u> <u>black-throated</u> <u>green</u>	<u>Dendroica</u> <u>virens</u>		BOVA

To view All 619 species [View 619](#)

\* FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed;  
FC=Federal Candidate; ES=Federal Species of Concern; SC=State Candidate; CC=Collection Concern; SS=State  
Special Concern

\*\* I=VA Wildlife Action Plan - Tier I - Critical Conservation Need; II=VA Wildlife Action Plan - Tier II - Very High  
Conservation Need; III=VA Wildlife Action Plan - Tier III - High Conservation Need; IV=VA Wildlife Action Plan - Tier  
IV - Moderate Conservation Need

#### Anadromous Fish Use Streams (3 records)

[View Map of All  
Anadromous Fish Use Streams](#)

Stream ID	Stream Name	Reach Status	Anadromous Fish Species			View Map
			Different Species	Highest TE*	Highest Tier**	
C2	<u>Accotink creek</u>	Confirmed	2		IV	<u>Yes</u>
C57	<u>Occoquan river</u>	Confirmed	6		IV	<u>Yes</u>
C62	<u>Pohick creek</u>	Confirmed	3		IV	<u>Yes</u>

#### Impediments to Fish Passage (1 records)

[View Map of All  
Fish Impediments](#)

ID	Name	River	View Map
1292	I-95	GILES RUN	<u>Yes</u>

#### Colonial Water Bird Survey

N/A

#### Threatened and Endangered Waters

N/A

**Cold Water Stream Survey (Trout Streams)**  
**Managed Trout Species**

N/A

**Public Holdings:** (3 names)

Name	Agency	Level
Fort Belvoir Military Reservation	U.S. Dept. of Army	Federal
Woodbridge Research / Diamond Laboratories	U.S. Dept. of Army	Federal
Mason Neck State Park	VA Dept. of Conservation and Recreation	State

audit no. 274027 1/11/2010 11:50:02 AM Virginia Fish and Wildlife Information Service  
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1/14/2010 11:51:09 AM

Facility = Kim STP (Winter November - March)  
Chemical = Ammonia  
Chronic averaging period = 30  
WLAA = 13  
WLAc =  
Q.L. = .2  
# samples/no. = 1  
# samples/wk. = 1

Summary of Statistics:

# observations = 1  
Expected Value = 9  
Variance = 29.16  
C.V. = 0.6  
97th percentile daily values = 21.9007  
97th percentile 4 day average = 14.9741  
97th percentile 30 day average = 10.8544  
# < Q.L. = 0  
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity  
Maximum Daily Limit = 13  
Average Weekly Limit = 13  
Average Monthly Limit = 13

The data are:

1/14/2010 11:52:55 AM

Facility = Kim STP (Summer April - October)  
Chemical = Ammonia  
Chronic averaging period = 30  
WLAa = 13  
WLAc =  
Q.L. = .2  
# samples/mo. = 1  
# samples/wk. = 1

Summary of Statistics:

# observations = 1  
Expected Value = 9  
Variance = 29.16  
C.V. = 0.6  
97th percentile daily values = 21.9007  
97th percentile 4 day average = 14.9741  
97th percentile 30 day average = 10.8544  
# < Q.L. = 0  
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity  
Maximum Daily Limit = 13  
Average Weekly Limit = 13  
Average Monthly Limit = 13

The data are:

2/11/2010 8:56:55 AM

Facility = Kim STP  
Chemical = TRC  
Chronic averaging period = 4  
WLAa = 19  
WLAC =  
Q.L. = 100  
# samples/mo. = 1  
# samples/wk. = 1

Summary of Statistics:

# observations = 1  
Expected Value = 200  
Variance = 14400  
C.V. = 0.6  
97th percentile daily values = 486.683  
97th percentile 4 day average = 332.758  
97th percentile 30 day average = 241.210  
# < Q.L. = 0  
Model used = BPU Assumptions, type 2 data

A limit is needed based on Acute Toxicity  
Maximum Daily Limit = 19  
Average Weekly Limit = 19  
Average Monthly Limit = 19

The data are:

200

Public Notice— Environmental Permit

**PURPOSE OF NOTICE:** To seek public comment on a draft permit from the Department of Environmental Quality that will allow the release of treated wastewater into a water body in Fairfax County, Virginia.

**PUBLIC COMMENT PERIOD:** XXX, 2010 to 5:00 p.m. on XXX, 2010

**PERMIT NAME:** Virginia Pollutant Discharge Elimination System Permit – Wastewater issued by DEQ, under the authority of the State Water Control Board

**APPLICANT NAME, ADDRESS AND PERMIT NUMBER:** Overseas Pan-Korean Center, 10527 Belmont Boulevard, Lorton, VA 22079, VA0090026

**NAME AND ADDRESS OF FACILITY:** Young J. Kim Sewage Treatment Plant, 10527 Belmont Boulevard, Lorton, VA 22079

**PROJECT DESCRIPTION:** Overseas Pan-Korean Center has applied for a reissuance of a permit for the private wastewater treatment plant. The applicant proposes to release treated sewage from a private residence at a rate of 0.009 million gallons per day into a water body. The sludge will be disposed of by transporting to another wastewater treatment plant yet to be determined. The facility proposes to release the treated sewage in the Thompson's Creek, UT in Fairfax County in the Potomac River watershed. A watershed is the land area drained by a river and its incoming streams. The permit will limit the following pollutants to amounts that protect water quality: pH, cBOD<sub>5</sub>, Chlorine, Total Phosphorus, Ammonia as Nitrogen, Dissolved Oxygen, *E. coli*, and Total Suspended Solids.

**HOW TO COMMENT AND/OR REQUEST A PUBLIC HEARING:** DEQ accepts comments and requests for public hearing by e-mail, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses, and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requestor, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. DEQ may hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit.

**CONTACT FOR PUBLIC COMMENTS, DOCUMENT REQUESTS AND ADDITIONAL INFORMATION:** The public may review the documents at the DEQ-Northern Regional Office by appointment, or may request electronic copies of the draft permit and fact sheet.

Name: Joan C. Crowther

Address: DEQ-Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193

Phone: (703) 583-3925 E-mail: joan.crowther@deq.virginia.gov Fax: (703) 583-3821

Revised 2/2003

**State "Transmittal Checklist" to Assist in Targeting  
Municipal and Industrial Individual NPDES Draft Permits for Review**

**Part I. State Draft Permit Submission Checklist**

In accordance with the MOA established between the Commonwealth of Virginia and the United States Environmental Protection Agency, Region III, the Commonwealth submits the following draft National Pollutant Discharge Elimination System (NPDES) permit for Agency review and concurrence.

Facility Name:	Young J. Kim Wastewater Treatment Plant
NPDES Permit Number:	VA0090026
Permit Writer Name:	Joan C. Crowther
Date:	2/22/10

Major ☐

Minor ☒

Industrial ☐

Municipal ☒

**I.A. Draft Permit Package Submittal Includes:**

	Yes	No	N/A
1. Permit Application?	X		
2. Complete Draft Permit (for renewal or first time permit - entire permit, including boilerplate information)?	X		
3. Copy of Public Notice?	X		
4. Complete Fact Sheet?	X		
5. A Priority Pollutant Screening to determine parameters of concern?	X		
6. A Reasonable Potential analysis showing calculated WQBELs?	X		
7. Dissolved Oxygen calculations?			X
8. Whole Effluent Toxicity Test summary and analysis?			X
9. Permit Rating Sheet for new or modified industrial facilities?			X

**I.B. Permit/Facility Characteristics**

	Yes	No	N/A
1. Is this a new, or currently unpermitted facility?		X	
2. Are all permissible outfalls (including combined sewer overflow points, non-process water and storm water) from the facility properly identified and authorized in the permit?	X		
3. Does the fact sheet or permit contain a description of the wastewater treatment process? (Proposed treatment)	X		
4. Does the review of PCS/DMR data for at least the last 3 years indicate significant non-compliance with the existing permit?			X
5. Has there been any change in streamflow characteristics since the last permit was developed?		X	
6. Does the permit allow the discharge of new or increased loadings of any pollutants?		X	
7. Does the fact sheet or permit provide a description of the receiving water body(s) to which the facility discharges, including information on low/critical flow conditions and designated/existing uses?	X		
8. Does the facility discharge to a 303(d) listed water?		X	
a. Has a TMDL been developed and approved by EPA for the impaired water?			X
b. Does the record indicate that the TMDL development is on the State priority list and will most likely be developed within the life of the permit?			X
c. Does the facility discharge a pollutant of concern identified in the TMDL or 303(d) listed water?			X
9. Have any limits been removed, or are any limits less stringent, than those in the current permit?		X	
10. Does the permit authorize discharges of storm water?		X	



	Yes	No	N/A
<b>I.B. Permit/Facility Characteristics – cont.</b>			
11. Has the facility substantially enlarged or altered its operation or substantially increased its flow or production?		X	
12. Are there any production-based, technology-based effluent limits in the permit?		X	
13. Do any water quality-based effluent limit calculations differ from the State's standard policies or procedures?		X	
14. Are any WQBELs based on an interpretation of narrative criteria?		X	
15. Does the permit incorporate any variances or other exceptions to the State's standards or regulations?		X	
16. Does the permit contain a compliance schedule for any limit or condition?		X	
17. Is there a potential impact to endangered/threatened species or their habitat by the facility's discharge(s)?		X	
18. Have impacts from the discharge(s) at downstream potable water supplies been evaluated?	X		
19. Is there any indication that there is significant public interest in the permit action proposed for this facility?		X	
20. Have previous permit, application, and fact sheet been examined?	X		

## Part II. NPDES Draft Permit Checklist

### Region III NPDES Permit Quality Checklist – for POTWs (To be completed and included in the record only for POTWs)

II.A. Permit Cover Page/Administration	Yes	No	N/A
1. Does the fact sheet or permit describe the physical location of the facility, including latitude and longitude (not necessarily on permit cover page)?	X		
2. Does the permit contain specific authorization-to-discharge information (from where to where, by whom)?	X		

II.B. Effluent Limits – General Elements	Yes	No	N/A
1. Does the fact sheet describe the basis of final limits in the permit (e.g., that a comparison of technology and water quality-based limits was performed, and the most stringent limit selected)?	X		
2. Does the fact sheet discuss whether “antibacksliding” provisions were met for any limits that are less stringent than those in the previous NPDES permit?	X		

II.C. Technology-Based Effluent Limits (POTWs)	Yes	No	N/A
1. Does the permit contain numeric limits for <u>ALL</u> of the following: BOD (or alternative, e.g., CBOD, COD, TOC), TSS, and pH?	X		
2. Does the permit require at least 85% removal for BOD (or BOD alternative) and TSS (or 65% for equivalent to secondary) consistent with 40 CFR Part 133?		X	
a. If no, does the record indicate that application of WQBELs, or some other means, results in more stringent requirements than 85% removal or that an exception consistent with 40 CFR 133.103 has been approved?	X		
3. Are technology-based permit limits expressed in the appropriate units of measure (e.g., concentration, mass, SU)?	X		
4. Are permit limits for BOD and TSS expressed in terms of both long term (e.g., average monthly) and short term (e.g., average weekly) limits?	X		
5. Are any concentration limitations in the permit less stringent than the secondary treatment requirements (30 mg/l BOD5 and TSS for a 30-day average and 45 mg/l BOD5 and TSS for a 7-day average)?		X	
a. If yes, does the record provide a justification (e.g., waste stabilization pond, trickling filter, etc.) for the alternate limitations?			X

II.D. Water Quality-Based Effluent Limits	Yes	No	N/A
1. Does the permit include appropriate limitations consistent with 40 CFR 122.44(d) covering State narrative and numeric criteria for water quality?	X		
2. Does the fact sheet indicate that any WQBELs were derived from a completed and EPA approved TMDL?			X
3. Does the fact sheet provide effluent characteristics for each outfall?	X		
4. Does the fact sheet document that a “reasonable potential” evaluation was performed?	X		
a. If yes, does the fact sheet indicate that the “reasonable potential” evaluation was performed in accordance with the State’s approved procedures?	X		
b. Does the fact sheet describe the basis for allowing or disallowing in-stream dilution or a mixing zone?	X		
c. Does the fact sheet present WLA calculation procedures for all pollutants that were found to have “reasonable potential”?	X		
d. Does the fact sheet indicate that the “reasonable potential” and WLA calculations accounted for contributions from upstream sources (i.e., do calculations include ambient/background concentrations)?			X
e. Does the permit contain numeric effluent limits for all pollutants for which “reasonable potential” was determined?	X		

<b>II.D. Water Quality-Based Effluent Limits – cont.</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
5. Are all final WQBELs in the permit consistent with the justification and/or documentation provided in the fact sheet?	X		
6. For all final WQBELs, are BOTH long-term AND short-term effluent limits established?	X		
7. Are WQBELs expressed in the permit using appropriate units of measure (e.g., mass, concentration)?	X		
8. Does the record indicate that an “antidegradation” review was performed in accordance with the State’s approved antidegradation policy?	X		

<b>II.E. Monitoring and Reporting Requirements</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
1. Does the permit require at least annual monitoring for all limited parameters and other monitoring as required by State and Federal regulations?	X		
a. If no, does the fact sheet indicate that the facility applied for and was granted a monitoring waiver, AND, does the permit specifically incorporate this waiver?			
2. Does the permit identify the physical location where monitoring is to be performed for each outfall?	X		
3. Does the permit require at least annual influent monitoring for BOD (or BOD alternative) and TSS to assess compliance with applicable percent removal requirements?		X	
4. Does the permit require testing for Whole Effluent Toxicity?		X	

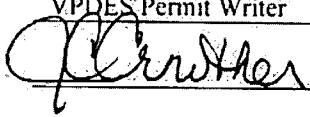
<b>II.F. Special Conditions</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
1. Does the permit include appropriate biosolids use/disposal requirements?	X		
2. Does the permit include appropriate storm water program requirements?			X

<b>II.F. Special Conditions – cont.</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
3. If the permit contains compliance schedule(s), are they consistent with statutory and regulatory deadlines and requirements?		X	
4. Are other special conditions (e.g., ambient sampling, mixing studies, TIE/TRE, BMPs, special studies) consistent with CWA and NPDES regulations?			X
5. Does the permit allow/authorize discharge of sanitary sewage from points other than the POTW outfall(s) or CSO outfalls [i.e., Sanitary Sewer Overflows (SSOs) or treatment plant bypasses]?		X	
6. Does the permit authorize discharges from Combined Sewer Overflows (CSOs)?		X	
a. Does the permit require implementation of the “Nine Minimum Controls”?			X
b. Does the permit require development and implementation of a “Long Term Control Plan”?			X
c. Does the permit require monitoring and reporting for CSO events?			X
7. Does the permit include appropriate Pretreatment Program requirements?			X

II.G. Standard Conditions			Yes	No	N/A
1. Does the permit contain all 40 CFR 122.41 standard conditions or the State equivalent (or more stringent) conditions?			X		
List of Standard Conditions – 40 CFR 122.41					
Duty to comply	Property rights	Reporting Requirements			
Duty to reapply	Duty to provide information	Planned change			
Need to halt or reduce activity	Inspections and entry	Anticipated noncompliance			
not a defense	Monitoring and records	Transfers			
Duty to mitigate	Signatory requirement	Monitoring reports			
Proper O & M	Bypass	Compliance schedules			
Permit actions	Upset	24-Hour reporting			
		Other non-compliance			
2. Does the permit contain the additional standard condition (or the State equivalent or more stringent conditions) for POTWs regarding notification of new introduction of pollutants and new industrial users [40 CFR 122.42(b)]?				X	

**Part III. Signature Page**

Based on a review of the data and other information submitted by the permit applicant, and the draft permit and other administrative records generated by the Department/Division and/or made available to the Department/Division, the information provided on this checklist is accurate and complete, to the best of my knowledge.

Name	<u>Joan C. Crowther</u>
Title	<u>VPDES Permit Writer</u>
Signature	<u></u>
Date	<u>February 22, 2010</u>

## ATTACHMENT 2

### Planning Statement

To: Doug Frasier  
From: Jennifer Carlson

Date: June 2, 2015  
Subject: Planning Statement for Young Kim Sewage Treatment Plant  
Permit Number: VA0090026

**Information for Outfall 001:**

Discharge Type: Municipal  
Discharge Flow: 0.0009 MGD  
Receiving Stream: Thompson's Creek, UT  
Latitude / Longitude: 38°40'17" / 77° 12'24"  
Rivermile: 0.13  
Streamcode: 1aXIQ  
Waterbody: VAN-A25R  
Water Quality Standards: Potomac River Basin, Section 7, Class III, Special Standards b  
Drainage Area: 0.02 sq. mi.

1. Please provide water quality monitoring information for the receiving stream segment. If there is not monitoring information for the receiving stream segment, please provide information on the nearest downstream monitoring station, including how far downstream the monitoring station is from the outfall.

This facility discharges into an unnamed tributary to Belmont Bay. This tributary has not been monitored or assessed by DEQ. There are no monitoring stations on any of the downstream free-flowing portions of the unnamed tributaries to Belmont Bay, therefore, a downstream water quality summary is not provided.

It is noted that the closest downstream DEQ monitoring station (1aOCC002.47) is located in tidal Belmont Bay, approximately 3.5 miles downstream of Outfall 001.

2. Does this facility discharge to a stream segment on the 303(d) list? If yes, please fill out Table A.

No.

3. Are there any downstream 303(d) listed impairments that are relevant to this discharge? If yes, please fill out Table B.

Yes.

**Table B. Information on Downstream 303(d) Impairments and TMDLs**

Waterbody Name	Impaired Use	Cause	Distance From Outfall	TMDL completed	WLA	Basis for WLA	TMDL Schedule
<b>Impairment Information in the 2012 Integrated Report</b>							
Occoquan Bay*	Fish Consumption	PCBs	1.5 miles	Potomac River Watershed PCB 10/31/2007	N/A	N/A	--
	Aquatic Life	Estuarine Bioassessment	2.7 miles	No	--	--	2018

\* Please note that in the Draft 2014 Integrated Assessment, Occoquan Bay is listed with a dissolved oxygen impairment for the aquatic life use. The dissolved oxygen impairment will be covered by the completed TMDL for the Chesapeake Bay watershed; however, the Bay TMDL and the WLAs contained within the TMDL are not addressed in this planning statement.

**4. Is there monitoring or other conditions that Planning/Assessment needs in the permit?**

In support for the downstream PCB impairment listed for the Occoquan embayment, this facility is a candidate for low-level PCB monitoring, based upon its designation as a minor municipal facility. Low-level PCB analysis uses EPA Method 1668, which is capable of detecting low-level concentrations for all 209 PCB congeners. DEQ staff has concluded that low-level PCB monitoring is not warranted for this facility, as it is a small wastewater treatment facility (<0.1 MGD) and is not expected to be a source of PCBs. Based upon this information, this facility will not be requested to monitor for low-level PCBs.

**5. Fact Sheet Requirements – Please provide information regarding any drinking water intakes located within a 5 mile radius of the discharge point.**

The Fairfax Water Authority Occoquan Reservoir intake is located within a 5 mile radius of this discharge.

## ATTACHMENT 3

### Water Quality Criteria / Wasteload Allocation Analysis



# FRESHWATER WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Young J. Kim STP

Permit No.: VA0090026

Receiving Stream: Thompson's Creek, UT

Version: OWP Guidance Memo 00-2011 (8/24/00)

## Stream Information

Mean Hardness (as CaCO<sub>3</sub>) = mg/L  
 90% Temperature (Annual) = deg C  
 90% Temperature (Wet season) = deg C  
 90% Maximum pH = SU  
 10% Maximum pH = SU  
 Tier Designation (1 or 2) = 1  
 Public Water Supply (PWS) Y/N? = n  
 Trout Present Y/N? = n  
 Early Life Stages Present Y/N? = y

## Stream Flows

1Q10 (Annual) = 0 MGD  
 7Q10 (Annual) = 0 MGD  
 30Q10 (Annual) = 0 MGD  
 1Q10 (Wet season) = 0 MGD  
 30Q10 (Wet season) = 0 MGD  
 30Q5 = 0 MGD  
 Harmonic Mean = 0 MGD

## Mixing Information

Annual - 1Q10 Mix = 100 %  
 - 7Q10 Mix = 100 %  
 - 30Q10 Mix = 100 %  
 Wet Season - 1Q10 Mix = 100 %  
 - 30Q10 Mix = 100 %

## Effluent Information

Mean Hardness (as CaCO<sub>3</sub>) = 50 mg/L  
 90% Temp (Annual) = 25 deg C  
 90% Temp (Wet season) = 15 deg C  
 90% Maximum pH = 7 SU  
 10% Maximum pH = 7 SU  
 Discharge Flow = 0.0009 MGD

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenaphthene	0	--	--	na	9.9E+02	--	--	na	9.9E+02	--	--	--	--	--	--	--	--	--	--	na	9.9E+02
Acrolein	0	--	--	na	9.3E+00	--	--	na	9.3E+00	--	--	--	--	--	--	--	--	--	--	na	9.3E+00
Acrylonitrile <sup>c</sup>	0	--	--	na	2.5E+00	--	--	na	2.5E+00	--	--	--	--	--	--	--	--	--	--	na	2.5E+00
Aldrin <sup>c</sup>	0	3.0E+00	--	na	5.0E-04	3.0E+00	--	na	5.0E-04	--	--	--	--	--	--	--	--	3.0E+00	--	na	5.0E-04
Ammonia-N (mg/l) (Yearly)	0	3.61E+01	3.01E+00	na	--	3.61E+01	3.01E+00	na	--	--	--	--	--	--	--	--	--	3.61E+01	3.01E+00	na	--
Ammonia-N (mg/l) (High Flow)	0	3.61E+01	5.73E+00	na	--	3.61E+01	5.73E+00	na	--	--	--	--	--	--	--	--	--	3.61E+01	5.73E+00	na	--
Anthracene	0	--	--	na	4.0E+04	--	--	na	4.0E+04	--	--	--	--	--	--	--	--	--	--	na	4.0E+04
Antimony	0	--	--	na	6.4E+02	--	--	na	6.4E+02	--	--	--	--	--	--	--	--	--	--	na	6.4E+02
Arsenic	0	3.4E+02	1.5E+02	na	--	3.4E+02	1.5E+02	na	--	--	--	--	--	--	--	--	--	3.4E+02	1.5E+02	na	--
Barium	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Benzene <sup>c</sup>	0	--	--	na	5.1E+02	--	--	na	5.1E+02	--	--	--	--	--	--	--	--	--	--	na	5.1E+02
Benzidine <sup>c</sup>	0	--	--	na	2.0E-03	--	--	na	2.0E-03	--	--	--	--	--	--	--	--	--	--	na	2.0E-03
Benzo (a) anthracene <sup>c</sup>	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (b) fluoranthene <sup>c</sup>	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (k) fluoranthene <sup>c</sup>	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (a) pyrene <sup>c</sup>	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Bis(2-Chloroethyl) Ether <sup>c</sup>	0	--	--	na	5.3E+00	--	--	na	5.3E+00	--	--	--	--	--	--	--	--	--	--	na	5.3E+00
Bis(2-Chloroisopropyl) Ether	0	--	--	na	6.5E+04	--	--	na	6.5E+04	--	--	--	--	--	--	--	--	--	--	na	6.5E+04
Bis 2-Ethylhexyl Phthalate <sup>c</sup>	0	--	--	na	2.2E+01	--	--	na	2.2E+01	--	--	--	--	--	--	--	--	--	--	na	2.2E+01
Bromoform <sup>c</sup>	0	--	--	na	1.4E+03	--	--	na	1.4E+03	--	--	--	--	--	--	--	--	--	--	na	1.4E+03
Butylbenzylphthalate	0	--	--	na	1.9E+03	--	--	na	1.9E+03	--	--	--	--	--	--	--	--	--	--	na	1.9E+03
Cadmium	0	1.8E+00	6.6E-01	na	--	1.8E+00	6.6E-01	na	--	--	--	--	--	--	--	--	--	1.8E+00	6.6E-01	na	--
Carbon Tetrachloride <sup>c</sup>	0	--	--	na	1.6E+01	--	--	na	1.6E+01	--	--	--	--	--	--	--	--	--	--	na	1.6E+01
Chlordane <sup>c</sup>	0	2.4E+00	4.3E-03	na	8.1E-03	2.4E+00	4.3E-03	na	8.1E-03	--	--	--	--	--	--	--	--	2.4E+00	4.3E-03	na	8.1E-03
Chloride	0	8.6E+05	2.3E+05	na	--	8.6E+05	2.3E+05	na	--	--	--	--	--	--	--	--	--	8.6E+05	2.3E+05	na	--
TRC	0	1.9E+01	1.1E+01	na	--	1.9E+01	1.1E+01	na	--	--	--	--	--	--	--	--	--	1.9E+01	1.1E+01	na	--
Chlorobenzene	0	--	--	na	1.6E+03	--	--	na	1.6E+03	--	--	--	--	--	--	--	--	--	--	na	1.6E+03

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane <sup>c</sup>	0	--	--	na	1.3E+02	--	--	na	1.3E+02	--	--	--	--	--	--	--	--	--	--	na	1.3E+02
Chloroform	0	--	--	na	1.1E+04	--	--	na	1.1E+04	--	--	--	--	--	--	--	--	--	--	na	1.1E+04
2-Chloronaphthalene	0	--	--	na	1.6E+03	--	--	na	1.6E+03	--	--	--	--	--	--	--	--	--	--	na	1.6E+03
2-Chlorophenol	0	--	--	na	1.5E+02	--	--	na	1.5E+02	--	--	--	--	--	--	--	--	--	--	na	1.5E+02
Chlorpyrifos	0	8.3E-02	4.1E-02	na	--	8.3E-02	4.1E-02	na	--	--	--	--	--	--	--	--	--	8.3E-02	4.1E-02	na	--
Chromium III	0	3.2E+02	4.2E+01	na	--	3.2E+02	4.2E+01	na	--	--	--	--	--	--	--	--	--	3.2E+02	4.2E+01	na	--
Chromium VI	0	1.6E+01	1.1E+01	na	--	1.6E+01	1.1E+01	na	--	--	--	--	--	--	--	--	--	1.6E+01	1.1E+01	na	--
Chromium, Total	0	--	--	1.0E+02	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Chrysene <sup>c</sup>	0	--	--	na	1.8E-02	--	--	na	1.8E-02	--	--	--	--	--	--	--	--	--	--	na	1.8E-02
Copper	0	7.0E+00	5.0E+00	na	--	7.0E+00	5.0E+00	na	--	--	--	--	--	--	--	--	--	7.0E+00	5.0E+00	na	--
Cyanide, Free	0	2.2E+01	5.2E+00	na	1.6E+04	2.2E+01	5.2E+00	na	1.6E+04	--	--	--	--	--	--	--	--	2.2E+01	5.2E+00	na	1.6E+04
DDD <sup>c</sup>	0	--	--	na	3.1E-03	--	--	na	3.1E-03	--	--	--	--	--	--	--	--	--	--	na	3.1E-03
DDE <sup>c</sup>	0	--	--	na	2.2E-03	--	--	na	2.2E-03	--	--	--	--	--	--	--	--	--	--	na	2.2E-03
DDT <sup>c</sup>	0	1.1E+00	1.0E-03	na	2.2E-03	1.1E+00	1.0E-03	na	2.2E-03	--	--	--	--	--	--	--	--	1.1E+00	1.0E-03	na	2.2E-03
Demeton	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	1.0E-01	na	--
Diazinon	0	1.7E-01	1.7E-01	na	--	1.7E-01	1.7E-01	na	--	--	--	--	--	--	--	--	--	1.7E-01	1.7E-01	na	--
Dibenz(a,h)anthracene <sup>c</sup>	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
1,2-Dichlorobenzene	0	--	--	na	1.3E+03	--	--	na	1.3E+03	--	--	--	--	--	--	--	--	--	--	na	1.3E+03
1,3-Dichlorobenzene	0	--	--	na	9.6E+02	--	--	na	9.6E+02	--	--	--	--	--	--	--	--	--	--	na	9.6E+02
1,4-Dichlorobenzene	0	--	--	na	1.9E+02	--	--	na	1.9E+02	--	--	--	--	--	--	--	--	--	--	na	1.9E+02
3,3-Dichlorobenzidine <sup>c</sup>	0	--	--	na	2.8E-01	--	--	na	2.8E-01	--	--	--	--	--	--	--	--	--	--	na	2.8E-01
Dichlorobromomethane <sup>c</sup>	0	--	--	na	1.7E+02	--	--	na	1.7E+02	--	--	--	--	--	--	--	--	--	--	na	1.7E+02
1,2-Dichloroethane <sup>c</sup>	0	--	--	na	3.7E+02	--	--	na	3.7E+02	--	--	--	--	--	--	--	--	--	--	na	3.7E+02
1,1-Dichloroethylene	0	--	--	na	7.1E+03	--	--	na	7.1E+03	--	--	--	--	--	--	--	--	--	--	na	7.1E+03
1,2-trans-dichloroethylene	0	--	--	na	1.0E+04	--	--	na	1.0E+04	--	--	--	--	--	--	--	--	--	--	na	1.0E+04
2,4-Dichlorophenol	0	--	--	na	2.9E+02	--	--	na	2.9E+02	--	--	--	--	--	--	--	--	--	--	na	2.9E+02
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
1,2-Dichloropropane <sup>c</sup>	0	--	--	na	1.5E+02	--	--	na	1.5E+02	--	--	--	--	--	--	--	--	--	--	na	1.5E+02
1,3-Dichloropropene <sup>c</sup>	0	--	--	na	2.1E+02	--	--	na	2.1E+02	--	--	--	--	--	--	--	--	--	--	na	2.1E+02
Dieldrin <sup>c</sup>	0	2.4E-01	5.6E-02	na	5.4E-04	2.4E-01	5.6E-02	na	5.4E-04	--	--	--	--	--	--	--	--	2.4E-01	5.6E-02	na	5.4E-04
Diethyl Phthalate	0	--	--	na	4.4E+04	--	--	na	4.4E+04	--	--	--	--	--	--	--	--	--	--	na	4.4E+04
2,4-Dimethylphenol	0	--	--	na	8.5E+02	--	--	na	8.5E+02	--	--	--	--	--	--	--	--	--	--	na	8.5E+02
Dimethyl Phthalate	0	--	--	na	1.1E+06	--	--	na	1.1E+06	--	--	--	--	--	--	--	--	--	--	na	1.1E+06
Di-n-Butyl Phthalate	0	--	--	na	4.5E+03	--	--	na	4.5E+03	--	--	--	--	--	--	--	--	--	--	na	4.5E+03
2,4 Dinitrophenol	0	--	--	na	5.3E+03	--	--	na	5.3E+03	--	--	--	--	--	--	--	--	--	--	na	5.3E+03
2-Methyl-4,6-Dinitrophenol	0	--	--	na	2.8E+02	--	--	na	2.8E+02	--	--	--	--	--	--	--	--	--	--	na	2.8E+02
2,4-Dinitrotoluene <sup>c</sup>	0	--	--	na	3.4E+01	--	--	na	3.4E+01	--	--	--	--	--	--	--	--	--	--	na	3.4E+01
Dioxin 2,3,7,8- tetrachlorodibenzo-p-dioxin	0	--	--	na	5.1E-08	--	--	na	5.1E-08	--	--	--	--	--	--	--	--	--	--	na	5.1E-08
1,2-Diphenylhydrazine <sup>c</sup>	0	--	--	na	2.0E+00	--	--	na	2.0E+00	--	--	--	--	--	--	--	--	--	--	na	2.0E+00
Alpha-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	2.2E-01	5.6E-02	na	8.9E+01	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	na	8.9E+01
Beta-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	2.2E-01	5.6E-02	na	8.9E+01	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	na	8.9E+01
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	--	--	2.2E-01	5.6E-02	--	--	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	--	--
Endosulfan Sulfate	0	--	--	na	8.9E+01	--	--	na	8.9E+01	--	--	--	--	--	--	--	--	--	--	na	8.9E+01
Endrin	0	8.6E-02	3.6E-02	na	6.0E-02	8.6E-02	3.6E-02	na	6.0E-02	--	--	--	--	--	--	--	--	8.6E-02	3.6E-02	na	6.0E-02
Endrin Aldehyde	0	--	--	na	3.0E-01	--	--	na	3.0E-01	--	--	--	--	--	--	--	--	--	--	na	3.0E-01

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	na	2.1E+03	--	--	na	2.1E+03	--	--	--	--	--	--	--	--	--	--	na	2.1E+03
Fluoranthene	0	--	--	na	1.4E+02	--	--	na	1.4E+02	--	--	--	--	--	--	--	--	--	--	na	1.4E+02
Fluorene	0	--	--	na	5.3E+03	--	--	na	5.3E+03	--	--	--	--	--	--	--	--	--	--	na	5.3E+03
Foaming Agents	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Guthion	0	--	1.0E-02	na	--	--	1.0E-02	na	--	--	--	--	--	--	--	--	--	--	1.0E-02	na	--
Heptachlor <sup>C</sup>	0	5.2E-01	3.8E-03	na	7.9E-04	5.2E-01	3.8E-03	na	7.9E-04	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	na	7.9E-04
Heptachlor Epoxide <sup>C</sup>	0	5.2E-01	3.8E-03	na	3.9E-04	5.2E-01	3.8E-03	na	3.9E-04	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	na	3.9E-04
Hexachlorobenzene <sup>C</sup>	0	--	--	na	2.9E-03	--	--	na	2.9E-03	--	--	--	--	--	--	--	--	--	--	na	2.9E-03
Hexachlorobutadiene <sup>C</sup>	0	--	--	na	1.8E+02	--	--	na	1.8E+02	--	--	--	--	--	--	--	--	--	--	na	1.8E+02
Hexachlorocyclohexane Alpha-BHC <sup>C</sup>	0	--	--	na	4.9E-02	--	--	na	4.9E-02	--	--	--	--	--	--	--	--	--	--	na	4.9E-02
Hexachlorocyclohexane Beta-BHC <sup>C</sup>	0	--	--	na	1.7E-01	--	--	na	1.7E-01	--	--	--	--	--	--	--	--	--	--	na	1.7E-01
Hexachlorocyclohexane Gamma-BHC <sup>C</sup> (Lindane)	0	9.5E-01	na	na	1.8E+00	9.5E-01	--	na	1.8E+00	--	--	--	--	--	--	--	--	9.5E-01	--	na	1.8E+00
Hexachlorocyclopentadiene	0	--	--	na	1.1E+03	--	--	na	1.1E+03	--	--	--	--	--	--	--	--	--	--	na	1.1E+03
Hexachloroethane <sup>C</sup>	0	--	--	na	3.3E+01	--	--	na	3.3E+01	--	--	--	--	--	--	--	--	--	--	na	3.3E+01
Hydrogen Sulfide	0	--	2.0E+00	na	--	--	2.0E+00	na	--	--	--	--	--	--	--	--	--	--	2.0E+00	na	--
Indeno (1,2,3-cd) pyrene <sup>C</sup>	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Iron	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Isophorone <sup>C</sup>	0	--	--	na	9.6E+03	--	--	na	9.6E+03	--	--	--	--	--	--	--	--	--	--	na	9.6E+03
Kepone	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Lead	0	4.9E+01	5.6E+00	na	--	4.9E+01	5.6E+00	na	--	--	--	--	--	--	--	--	--	4.9E+01	5.6E+00	na	--
Malathion	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	1.0E-01	na	--
Manganese	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Mercury	0	1.4E+00	7.7E-01	--	--	1.4E+00	7.7E-01	--	--	--	--	--	--	--	--	--	--	1.4E+00	7.7E-01	--	--
Methyl Bromide	0	--	--	na	1.5E+03	--	--	na	1.5E+03	--	--	--	--	--	--	--	--	--	--	na	1.5E+03
Methylene Chloride <sup>C</sup>	0	--	--	na	5.9E+03	--	--	na	5.9E+03	--	--	--	--	--	--	--	--	--	--	na	5.9E+03
Methoxychlor	0	--	3.0E-02	na	--	--	3.0E-02	na	--	--	--	--	--	--	--	--	--	--	3.0E-02	na	--
Mirex	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Nickel	0	1.0E+02	1.1E+01	na	4.6E+03	1.0E+02	1.1E+01	na	4.6E+03	--	--	--	--	--	--	--	--	1.0E+02	1.1E+01	na	4.6E+03
Nitrate (as N)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Nitrobenzene	0	--	--	na	6.9E+02	--	--	na	6.9E+02	--	--	--	--	--	--	--	--	--	--	na	6.9E+02
N-Nitrosodimethylamine <sup>C</sup>	0	--	--	na	3.0E+01	--	--	na	3.0E+01	--	--	--	--	--	--	--	--	--	--	na	3.0E+01
N-Nitrosodiphenylamine <sup>C</sup>	0	--	--	na	6.0E+01	--	--	na	6.0E+01	--	--	--	--	--	--	--	--	--	--	na	6.0E+01
N-Nitrosodi-n-propylamine <sup>C</sup>	0	--	--	na	5.1E+00	--	--	na	5.1E+00	--	--	--	--	--	--	--	--	--	--	na	5.1E+00
Nonylphenol	0	2.8E+01	6.6E+00	--	--	2.8E+01	6.6E+00	na	--	--	--	--	--	--	--	--	--	2.8E+01	6.6E+00	na	--
Parathion	0	6.5E-02	1.3E-02	na	--	6.5E-02	1.3E-02	na	--	--	--	--	--	--	--	--	--	6.5E-02	1.3E-02	na	--
PCB Total <sup>C</sup>	0	--	1.4E-02	na	6.4E-04	--	1.4E-02	na	6.4E-04	--	--	--	--	--	--	--	--	--	1.4E-02	na	6.4E-04
Pentachlorophenol <sup>C</sup>	0	8.7E+00	6.7E+00	na	3.0E+01	8.7E+00	6.7E+00	na	3.0E+01	--	--	--	--	--	--	--	--	8.7E+00	6.7E+00	na	3.0E+01
Phenol	0	--	--	na	8.6E+05	--	--	na	8.6E+05	--	--	--	--	--	--	--	--	--	--	na	8.6E+05
Pyrene	0	--	--	na	4.0E+03	--	--	na	4.0E+03	--	--	--	--	--	--	--	--	--	--	na	4.0E+03
Radionuclides Gross Alpha Activity (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Beta and Photon Activity (mrem/yr)	0	--	--	na	4.0E+00	--	--	na	4.0E+00	--	--	--	--	--	--	--	--	--	--	na	4.0E+00
Radium 226 + 228 (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Uranium (ug/l)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	na	4.2E+03	2.0E+01	5.0E+00	na	4.2E+03	--	--	--	--	--	--	--	--	2.0E+01	5.0E+00	na	4.2E+03
Silver	0	1.0E+00	--	na	--	1.0E+00	--	na	--	--	--	--	--	--	--	--	--	1.0E+00	--	na	--
Sulfate	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
1,1,2,2-Tetrachloroethane <sup>C</sup>	0	--	--	na	4.0E+01	--	--	na	4.0E+01	--	--	--	--	--	--	--	--	--	--	na	4.0E+01
Tetrachloroethylene <sup>C</sup>	0	--	--	na	3.3E+01	--	--	na	3.3E+01	--	--	--	--	--	--	--	--	--	--	na	3.3E+01
Thallium	0	--	--	na	4.7E-01	--	--	na	4.7E-01	--	--	--	--	--	--	--	--	--	--	na	4.7E-01
Toluene	0	--	--	na	6.0E+03	--	--	na	6.0E+03	--	--	--	--	--	--	--	--	--	--	na	6.0E+03
Total dissolved solids	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Toxaphene <sup>C</sup>	0	7.3E-01	2.0E-04	na	2.8E-03	7.3E-01	2.0E-04	na	2.8E-03	--	--	--	--	--	--	--	--	7.3E-01	2.0E-04	na	2.8E-03
Tributyltin	0	4.6E-01	7.2E-02	na	--	4.6E-01	7.2E-02	na	--	--	--	--	--	--	--	--	--	4.6E-01	7.2E-02	na	--
1,2,4-Trichlorobenzene	0	--	--	na	7.0E+01	--	--	na	7.0E+01	--	--	--	--	--	--	--	--	--	--	na	7.0E+01
1,1,2-Trichloroethane <sup>C</sup>	0	--	--	na	1.6E+02	--	--	na	1.6E+02	--	--	--	--	--	--	--	--	--	--	na	1.6E+02
Trichloroethylene <sup>C</sup>	0	--	--	na	3.0E+02	--	--	na	3.0E+02	--	--	--	--	--	--	--	--	--	--	na	3.0E+02
2,4,6-Trichlorophenol <sup>C</sup>	0	--	--	na	2.4E+01	--	--	na	2.4E+01	--	--	--	--	--	--	--	--	--	--	na	2.4E+01
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Vinyl Chloride <sup>C</sup>	0	--	--	na	2.4E+01	--	--	na	2.4E+01	--	--	--	--	--	--	--	--	--	--	na	2.4E+01
Zinc	0	6.5E+01	6.6E+01	na	2.6E+04	6.5E+01	6.6E+01	na	2.6E+04	--	--	--	--	--	--	--	--	6.5E+01	6.6E+01	na	2.6E+04

Notes:

- All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
- Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
- Metals measured as Dissolved, unless specified otherwise
- "C" indicates a carcinogenic parameter
- Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.  
Antidegradation WLAs are based upon a complete mix.
- Antideg. Baseline =  $(0.25(WQC - \text{background conc.}) + \text{background conc.})$  for acute and chronic  
=  $(0.1(WQC - \text{background conc.}) + \text{background conc.})$  for human health
- WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)
Antimony	6.4E+02
Arsenic	9.0E+01
Barium	na
Cadmium	3.9E-01
Chromium III	2.5E+01
Chromium VI	6.4E+00
Copper	2.8E+00
Iron	na
Lead	3.4E+00
Manganese	na
Mercury	4.6E-01
Nickel	6.8E+00
Selenium	3.0E+00
Silver	4.2E-01
Zinc	2.6E+01

Note: do not use QL's lower than the minimum QL's provided in agency guidance

## ATTACHMENT 4

### 2010 Ammonia & TRC Limitation Derivations

1/14/2010 11:51:09 AM

Facility = Kim STP (Winter November - March)  
Chemical = Ammonia  
Chronic averaging period = 30  
WLAA = 13  
WLA<sub>C</sub> =  
Q.L. = .2  
# samples/mo. = 1  
# samples/wk. = 1

Summary of Statistics:

# observations = 1  
Expected Value = 9  
Variance = 29.16  
C.V. = 0.6  
97th percentile daily values = 21.9007  
97th percentile 4 day average = 14.9741  
97th percentile 30 day average = 10.8544  
# < Q.L. = 0  
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity  
Maximum Daily Limit = 13  
Average Weekly limit = 13  
Average Monthly Limit = 13

The data are:

1/14/2010 11:52:55 AM

Facility = Kim STP (Summer April - October)  
Chemical = Ammonia  
Chronic averaging period = 30  
WLAa = 13  
WLAc =  
Q.L. = .2  
# samples/mo. = 1  
# samples/wk. = 1

Summary of Statistics:

# observations = 1  
Expected Value = 9  
Variance = 29.16  
C.V. = 0.6  
97th percentile daily values = 21.9007  
97th percentile 4 day average = 14.9741  
97th percentile 30 day average = 10.8544  
# < Q.L. = 0  
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity  
Maximum Daily Limit = 13  
Average Weekly limit = 13  
Average Monthly Limit = 13

The data are:

2/11/2010 8:56:55 AM

Facility = Kim STP  
Chemical = TRC  
Chronic averaging period = 4  
WLAa = 19  
WLAc =  
Q.L. = 100  
# samples/mo. = 1  
# samples/wk. = 1

Summary of Statistics:

# observations = 1  
Expected Value = 200  
Variance = 14400  
C.V. = 0.6  
97th percentile daily values = 486.683  
97th percentile 4 day average = 332.758  
97th percentile 30 day average = 241.210  
# < Q.L. = 0  
Model used = BPU Assumptions, type 2 data

A limit is needed based on Acute Toxicity  
Maximum Daily Limit = 19  
Average Weekly limit = 19  
Average Monthly Limit = 19

The data are:

200



## ATTACHMENT 5

### Public Notice

Public Notice – Environmental Permit

**PURPOSE OF NOTICE:** To seek public comment on a draft permit from the Department of Environmental Quality that will allow the release of treated wastewater into a water body in Fairfax County, Virginia.

**PUBLIC COMMENT PERIOD:** TBD, 2015 to TBD, 2015

**PERMIT NAME:** Virginia Pollutant Discharge Elimination System Permit – Wastewater issued by DEQ, under the authority of the State Water Control Board

**APPLICANT NAME, ADDRESS AND PERMIT NUMBER:** Overseas Pan-Korean Center  
10527 Belmont Boulevard, Lorton, VA 22079  
VA0090026

**PROJECT DESCRIPTION:** Overseas Pan-Korean Center has applied for a reissuance of a permit for the private Kim Young J Sewage Treatment Plant. The applicant proposes to release treated sewage wastewaters from this residence at a rate of 0.0009 million gallons per day into a water body. Sludge from the treatment process will be transported to another undermined treatment plant for further treatment and final disposal. The facility proposes to release the treated sewage in an unnamed tributary to Thompson's Creek in Fairfax County in the Potomac River watershed. A watershed is the land area drained by a river and its incoming streams. The permit will limit the following pollutants to amounts that protect water quality: pH, carbonaceous-biochemical oxygen demand-5 day, total residual chlorine, total suspended solids, ammonia as nitrogen, dissolved oxygen and E. coli and total phosphorus.

**HOW TO COMMENT AND/OR REQUEST A PUBLIC HEARING:** DEQ accepts comments and requests for public hearing by hand-delivery, e-mail, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. A public hearing may be held, including another comment period, if public response is significant, based on individual requests for a public hearing, and there are substantial, disputed issues relevant to the permit.

**CONTACT FOR PUBLIC COMMENTS, DOCUMENT REQUESTS AND ADDITIONAL INFORMATION:** The public may review the draft permit and application at the DEQ-Northern Regional Office by appointment, or may request electronic copies of the draft permit and fact sheet.

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